BELYAYEV, K.I.

LURIYA, A.P., professor, otvetstvennyy redaktor; BELYAYEV, K.I., redaktor; SOKOLOVA, R.Ya., tekhnicheskiy redaktor

[Problems of the higher nervous activity of normal and abnormal children] Problemy vysshei nervnoi deiatel'nosti normal'nogo i anomal'nogo rebenka. Otv.red. A.R.Luriia. Moskva. Vol. 1. 1956. 418 p. (MLRA 10:3)

1. Akademiya pedagogicheskikh nauk RSFSR, Moscow. Institut defektologii.
2. Deystvitel'nyy chlen APN RSFSR (for Luriya)
(NERVOUS SYSTEM) (CHILD STUDY)

TEPLOV, B.M., otvetstvennyy redaktor; BELYAYEV, K.I., redaktor; GARNEK, V.P., tekhnicheskiy redaktor

[Typological characteristics of the higher nervous activities of man] Tipologicheskie osobennosti vysshei nervnoi deiatel'nosti cheloveka. Otv. red. B.M.Teplov. Moskva, 1956. 409 p. (MLRA 9:7)

1. Akademiya pedagogicheskikh nauk RSFSR, Moscow. Institut psikhologii, 2. Deystvitel'nyy chlen APN RSFSR (for Teplov).
(PSYCHOLOGY, PHYSIOLOGICAL)

KABANOV, Aleksandr Nikolayevich, professor; BELYAYEV, K.I., redaktor;
VOLKOV, A.P., tekhnicheskiy redaktor

[Sketch of the physiology of higher nervous activity] Ocherk fiziologii vysshei nervnoi deiatel'nosti. Moskva, Izd-vo Akademii pedagog. nauk RSFSR, 1956. 146 p. (MLRA 9:9)
(PSYCHOLOGY, PHYSIOLOGICAL)

SOVETOV, S.Ye., professor; BELYAYEV, K.I.

[Health of the school child] O zdorov'e shkol'nika. Moskva, Gos. uchebno-pedagog. izd-vo, 1952. 43 p. (MLRA 6:5)

(Children--Care and hygiene)

1. BELYAYEV, N. I., Eng.

2. USSR (600)

4. Soil Mechanics

7. Prevention of ground swelling deformations. Stroi. prom. 31, No. 4, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

BELYAYEV, K.I.

From experience of the Leningrad Province Scientific Engineering and Technical Society of textile workers. Tekst.prom. 15 no.2: 47-48 F '55. (MLRA 8:3)
(Leningrad Province--Textile research)

TOLSTOY, M.P.; SHCHERBAKOV, A.V.; YUDIN, S.S.; BELYAYEV, I.V.; ZADOROZHKO, L.I.; IVANOV, V.K.; KARPOVA, A.S.

Reviews. Izv. AN SSSR. Ser. geol. 30 no.7:127-133 Jl '65.
(MIRA 18:7)

1. Moskovskaya ordena Lenina sel'skokhozyaystvennaya akademiya imeni Timiryazeva i Geologicheskiy institut AN SSSR (for Tolstoy, Shcherbakov). 2. TSentral'naya geologo-geofizicheskaya ekspeditsiya Severo-Vostochnogo geologicheskogo upravleniya, Magadan (for Yudin, Belyayev, Zadorozhko, Ivanov, Karpova).

L 8315-66 EWT(1)/FCC GW

ACCESSION NR: AR5013957 UR/0169/65/000/004/G003/G003
550.311

SOURCE: Ref. zh. Geofizika, Abs. 4G14

AUTHOR: Belyayev, I V.; Migovich, I.M.

TITLE: Abyssal structure of the Apuksko-Pakhachinskiy shield (on the basis of geophysical research data)

CITED SOURCE: Sb. Probl. vulkanizma. Petropavlovsk-Kamchatskiy, Dal'nevost. kn. izd-vo, 1964, 22-23

TOPIC TAGS: earth crust, magnetic anomaly

TRANSLATION: A study was made of the characteristics of the magnetic field and its interpretation. Two systems of large-scale anomalies were distinguished. Due to the fact that shield deposits do not affect the general structure of the anomalous field, the distinguished systems of anomalies reflect the abyssal structure of the territory. A series of large anomalous zones are interpreted as abyssal fractures controlling the distribution of individual large centers of effusive activity.

SUB CODE: ES ENCL: 00

Card 1/1

BELYAYEV, I.V., kand.tekhn.nauk, dots.

Character of the variation in tension in rolling machines. Shor. nauch.trud IEI no.8:439-451 '58. (MIRA 13:4)
(Textile machinery)

BELYAYEV, I.V., kand.tekhn.nauk, dots.

Static characteristics of electric drives for rolling machines.
Sbor.nauch.trud IMI no.8:418-438 '58. (MIRA 13:4)
(Textile machinery--Electric driving)

BELYAYEV, I.V., dots., kand.tekhn.nauk

Electric drives for reelers. Izv.vys.ucheb.zav.; energ. no.8:41-52 Ag '58. (MIRA 11:11)

1. Ivanovskiy energeticheskiy institut imeni V.I.Lenina.
(Electric driving)

BELYAYEV, I.V., kand.tekhn.nauk

Transients in the acceleration and braking of a rolling machine drive with a compensator for length. Izv.vys.uchab.zav.; energ. no.6:34-43 Je '58. (MIRA 11:9)

1.Ivanovskiy energeticheskiy institut im. V.I. Lenina.
(Transients (Electricity)) (Electric motors)

On the Problem of Agreement of the Speeds of the Electric Drives of Rolling Mills When Being Started and Stopped

ber of rotations on the occasion of starting with a constant moment and a not fully saturated magnetic system are given. The conditions for starting with constant voltage are worked out, and also in this case a calculation which was carried out is mentioned. In conclusion, the braking period is dealt with on the basis of an example. There are 2 figures and 1 table.

ASSOCIATION: Kafedra elektrooborudovaniya promyshlennykh predpriyatiy, Ivanovskogo energeticheskogo institute (Chair for the Electrical Equipment of Industrial Plants at the Ivanovo Institute for Power Engineering)

This article was recommended for publication by the Ivanovskiy energeticheskiy institut im. V. I. Lenina (Ivanovo Institute for Power Engineering imeni V. I. Lenin)

SUBMITTED: April 23, 1958

18(5)

SOV/161-58-3-15/27

AUTHOR: Belyayev, I. V., Candidate of Technical Sciences, Docent

TITLE: On the Problem of Agreement of the Speeds of the Electric Drives of Rolling Mills When Being Started and Stopped (K voprosu o soglasovanii skorostey v elektroprivodakh nakatov pri puskakh i ostanovakh)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Elektromekhanika i avtomatika, 1958, Nr 3, pp 143-149 (USSR)

ABSTRACT: In the introduction a scheme of the layout of a band rolling mill with coiling machine and the corresponding driving systems is described (Fig 1). Next, conditions on the occasion of starting are investigated and formula (1) is written down for start amperage. The quantities occurring therein are discussed and the delay time is approximately determined by means of an expansion in series. The error committed does not exceed 5%. The results obtained by calculation are given as an example. The differential equation of voltage is then written down, the quantities occurring in it are explained, and, finally, the conditions for the constancy of voltage during starting are investigated. By means of equation (12) the increase of the num-

Card 1/2

FD-1749

Card 2/2

Automatization of industrial processes, electrical equipping of industrial mechanisms, Electrification of enterprises, etc.

Institution : Ivanov Electric Power Institute im. Lenin [Ivanovskiy energeticheskiy institut im. V. I. Lenina]

Submitted : -

BELYAYEV, I. V.

USSR/Engineering - Regulation

FD-1749

Card 1/2 : Pub. 10-8/12

Author : Belyayev, I. V. (docent); Borisov, V. A. (docent); Skurikhin, V. I.; Zakharov, M. F.; Krylov, M. A. (all Candidates of Technical Sciences)

Title : Discussion on the article "Development of Automatics and Telemechanics in the Fifth Five-Year Plan"

Periodical : Avtom. i telem., Vol. 16, 203-205, Mar-Apr 1955

Abstract : In a letter by a group of scientists from the Leningrad Electrical Engineering Institute, "Development of Automatics and Telemechanics in the 5th 5-Year Plan," published in No 2, 1953, ibid., a number of important questions were posed: The serial (mass) production of typical automatic and telemeter apparatuses for industry, agriculture, and sci-resinstitutions; expansion and teaching of specialists in the planning, designing, manufacturing, and exploitation of automatic and telemeter equipment; strengthening of connection between individual institutions and other organizations concerned with automatics and telemechanics. Actively engaged at Leningrad Electrical Engineering Institute in these problems are Professors N. K. Bogoroditskiy, D. V. Vasil'yev, S. A. Rinkevich, V. I. Ivanov, and others. Special courses already formed are: Principles of telemechanics, Principles of automatization, Regulation of electric drives, Electrical power stations, networks and systems, Relay protection and automatization of electrical power systems,

Translation
M-1312,
19 Nov 58

BELYAYEV, I. V.

PA 39/49T23

USSR/Electricity
Motors, Electric
Voltage Drop

Apr 49

"Dependence of Slip Upon Voltage in Asynchronous Motors," I. V. Belyayev, Cand Tech Sci, Ivanovo Power Eng Inst imeni Lenin, 2 pp

"Elektrichestvo" No 4

Concludes that asynchronous motors having small overload capacity, large critical slip, and constant power on the shaft permit least voltage reduction. Considering the moment of frictional force M_0, drop in voltage in this case must not exceed 10 - 25%.

39/49T23

BELYAYEV, I.P., Cand Med Sci--(diss) "Pregnancy and labor after a Caesarean operation." Gor'kiy, 1958. 19 pp (Gor'kiy Med Inst im S.M. Kirov), 200 copies (KL,30-58,131)

BELYAYEV, I.T.; LIPKINA, B.O.

Rupture of a low cervical transverse cesarean scar. Akush. i gin. 33 no.2:57-59 Mr-Ap '57. (MLRA 10:6)

1. Iz kafedry akusherstva i ginekologii (zav. - prof. I.D.Arist) Chelyabinskogo meditsinskogo instituta na baze akushersko-ginekologicheskogo otdeleniya bol'nitsy mediko-sanitarnoy chasti Chelyabinskogo traktornogo zavoda.

(LABOR, compl.
rupt. of low cervical transverse cesarean scar)
(UTERUS, rupt.
in labor, in site of previous low cervical transverse cesarean scar)

BELYAYEV, I. M., assistent; ULYBYSHEVA, Z.G., vrach

Result of postgraduate training of obstetricians and gynecologists through short courses. Sov.zdrav. 16 no.4:27-28 Ap '57. (MLRA 10:8)

1. Iz kafedry akusherstva i ginekologii (zav. - prof. I.D.Arist) Chelyabinskogo meditsinskogo instituta
(GYNECOLOGY, education,
postgraduate in Russia (Rus))
(OBSTETRICS, education,
same)

BELYAYEV, I. T.

BELYAYEV, I. T.

600

1. BELYAYEV, I. T.

2. USSR, (600)

4. Labor - Complicated

7. Tsoviyanov's method of conducting labor in breech presentation., Akush. i. gin., no. 1, 1952 Iz Troitskogo Gorodskogo Rodil'nogo Doma (Glavnyy Vrach I.T. Belyayev) Chelyabinskoy Oblasti

9a. Monthly List of Russian Accessions, Library of Congress, March 1952, UNCLASSIFIED.

KRUPIN, G.V.; BELYAYEV, I.T.; LAPSHIN, A.A.; GORDEYEV, N.I.; MAR'YANOVSKIY, I.M.; PAVLOV, B.V.; ZHILOV, S.N.; TSYPKIN, S.I.; ANDREYEV, N.N.; KAZIMOROVA, V.F.; KURANOVA, I.L.; PIGULEVSKIY, G.V.

Annotations of the scientific research work performed at the institute in 1957. Trudy LTIKHP 15:213-227 '58.
(MIRA 13:4)

1. Leningradskiy tekhnologicheskiy institut kholodil'noy promyshlennosti. 2. Kafedra tekhnologicheskogo oborudovaniya pishchevykh proizvodstv (for Krupin, Lapshin, Pavlov). 3. Kafedra ekonomiki i organizatsii proizvodstva (for Belyayev). 4. Kafedra detaley mashin i pod"yemno-transportnykh mashin (for Gordeyev). 5. Kafedra grafiki (for Mar'yanovskiy). 6. Kafedra promyshlannoy teplotekhniki (for Zhilov). 7. Kafedra fiziki (for TSypkin). 8. Kafedra fizicheskoy kolloidnoy i organicheskoy khimii (for Andreyev, Kazimirova, Kuranova, Pigulevskiy).
(Refrigeration and refrigerating machinery)
(Chemistry, Technical)

BELYAYEV, I.T.

Rational planning of administrative branches of agriculture.
Trudy LTIKHP 15:196-212 '58. (MIRA 13:4)

1. Predstavlena Kafedroy ekonomiki i organizatsii proizvodstva Leningradskogo tekhnologicheskogo instituta kholodil'noy promyshlennosti.
(Agriculture)

Checkup of Pilots for Fitness - an Important Condition for Warranting Flying Safety

S/177/60/000/004/001/003
B004/B064

causes (professional or private troubles) are frequently not reported by the pilot. Medical officers have succeeded in having these pilots held responsible if concealment was intentional. Systematic instruction and checkup should be carried out not only by medical officers but also by the pilots themselves, their colleagues, and members of their families. Medical officers have a say in duty assignments. In one unit, e.g., the beginning of training flights during the warm summer days was postponed. So-called "prophylactic homes" (convalescent homes) were created near the bases to prevent overtiredness. These homes are equipped with sporting grounds, swimming pools, libraries, and television sets; films are also shown there. Upon the medical officers' prescription pilots are sent to these convalescent homes for seven days, if possible together with their families. Since the introduction of these measures, symptoms of overtiredness have become much less frequent. The author mentions the medical officers Rogov, Aslanov, Boyko, and Boyarskiy, as well as Artamonov, commander of an air-force unit.

SUBMITTED: January 1960

Card 2/2

S/177/60/000/004/001/003
B004/B064

AUTHOR: Belyayev, I. S., Colonel, Surgeon

TITLE: Checkup of Pilots for Fitness - an Important Condition for Warranting Flying Safety

PERIODICAL: Voyenno-meditsinskiy zhurnal, 1960, No. 4, pp. 70-72

TEXT: The author stresses the importance of preflight medical checkup. In spite of the short time available before flight, a superficial medical checkup and questioning by the medical officer are not sufficient. Besides the appearance and behavior of the pilot, also the state of the integument, the visible mucosae should be examined, and the pulse measured. These data are to be entered in a so-called preflight log. With their help it is possible, even in the case of slight deviations, to determine the beginning of an indisposition. The author gives two examples. Changes in the pulse rate and the behavior of pilots rendered more detailed checkups necessary; thus, it was possible to diagnose an indisposition right from the beginning. Temporarily reduced fitness due to a beginning indisposition, disregard of preflight conditions, or psychological

Card 1/2

1. BELYAYEV, I. S.

2. USSR (600)

4. Spinning Machinery

7. Knot-making on the US-175 rayon yarn machine. Tekst.prom. 12 no. 10, 1952.

9. Monthly List of Russian Accessions, Library of Congress, January 1953, Unclassified.

BELYAYEV, Igor', Petrovich; BAYDIN, S.S., kand. geogr. nauk, nauchn. red.; MINENKO, V.M., red.; ZARKH, I.M., tekhn. red.

[Hydrology of the Terek Delta] Gidrologiia del'ty Tereka. Pod red. S.S.Baidina. Moskva, Gidrometeoizdat, 1963. 207 p. (MIRA 16:12)

(Terek River--Delta)

BELYAYEV, I.P.

Some features of the level regimen in the estuary region of the Terek River. Trudy GOIN no.49:61-78 '60. (MIRA 13:7)
(Terek Delta region--Hydrology)

BELYAYEVA, I.P.

Calculation of the diurnal total radiation incident on inclined surfaces on cloudy days. Izv. AN Uz. SSR. Ser. fiz.-mat. nauk 6 no.4:38-46 '62. (MIRA 15:9)

1. Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut.
(Tashkent—Solar radiation)

BESPYATOV, M.P., kand.tekhn.nauk; BAYKOV, S.F.; MAGNITSKIY, L.A., inzh.; DERYABINA, A.Ye., inzh.; SHMIDT, A.A., kand.tekhn.nauk; BELYAYEV, I.P., inzh.

Operational experience with the TNB-2 unit. Masl.-zhir.prom. 25 no.1:39-41 '59. (MIRA 12:1)

1. Khar'kovskiy politekhnicheskiy institut im. V.I.Lenina (for Bespyatov) 2. Moskovskiy zavod "Novyy mylovar" (for Baykov, Magnitskiy, Deryabina). 3. TSentral'naya nauchno-issledovatel'skaya laboratoriya Upravleniya meditsinskoy i parfyumernoy promyshlennosti Mosgorsovnarkhoza (for Shmidt, Belyayev).
(Moscow--Oil industries--Equipment and supplies)
(Saponification)

L 38422-66 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6020366 (A) SOURCE CODE: UR/0078/66/011/003/0464/0467

AUTHOR: Belyayev, I. N.; Artamonova, S. A.

ORG: none

TITLE: Study of titanium and zirconium hydroxides and coprecipitated hydroxides of titanium and lead and zirconium and lead

SOURCE: Zhurnal neorganicheskoy khimii, v. 11, no. 3, 1966, 464-467

TOPIC TAGS: hydroxide, titanium compound, zirconium compound, lead compound

ABSTRACT: Titanium and zirconium hydroxides obtained by precipitation with ammonia from nitric acid solutions, and hydroxides obtained by coprecipitation with ammonia from nitric acid solutions of titanium and lead and zirconium and lead were investigated thermographically with an FPK-59 Kurnakov pyrometer and thermogravimetrically. It is shown that titanium and zirconium hydroxides dried at 60°C represent metatitanic acid $TiO(OH)_2$ - H_2TiO_3 and orthozirconic acid $Zr(OH)_4$ - H_4ZrO_4 respectively. The coprecipitated hydroxides dried at 60°C correspond to the compositions $Pb(OH)_2 \cdot Ti(OH)_4$ and $Pb(OH)_2 \cdot Zr(OH)_4$. It is possible that the coprecipitated hydroxides are respectively lead hydroxotitanate and lead hydroxozirconate, whose simplest formulas are $Pb[Ti(OH)_6]$ and $Pb[Zr(OH)_6]$ or $PbTiO_3 \cdot 3H_2O$ and $PbZrO_3 \cdot 3H_2O$. Orig. art. has: 1 figure and 1 table.

SUB CODE: 07/ SUBM DATE: 25May64/ ORIG REF: 010/ OTH REF: 003 UDC: 54-36

Card 1/1

BELYAYEV, I.N.; GOLOVANOVA, T.G.

K_2TiO_3 - Na_2TiO_3 system. Zhur.neorg.khim. 10 no.8:1877-1879 Ag '65. (MIRA 19:1)

1. Submitted July 25, 1964.

BELYAYEV, I.N.; BELYAYEVA, A.G.

Study of the system K_2TiO_3 - KCl - TiO_2. Zhur.prikl.khim. 38 no.6:1280-1284 Je '65. (MIRA 18:10)

BELYAYEV, I.N.; BELYAYEVA, A.G.

System Na_2TiO_3 - NaCl - TiO_2. Zhur. neorg. khim. 10 no.2:467-471 F '65. (MIRA 18:11)

1. Submitted July 18, 1963.

BELYAYEV, I.N.; AVER'YANOVA, I.N.; BELYAYEVA, L.I.

X-ray phase-shift study of the systems $PbMoO_4$ – $PbWO_4$, $PbUO_4$ – $PbWO_4$, $PbUO_4$ – $PbMoO_4$. Izv. AN SSSR. Neorg. mat. 1 no.7:1181-1185 Jl '65. (MIRA 18:9)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.

L 52976-65

ACCESSION NR: AP5009951

ENCLOSURE: 02

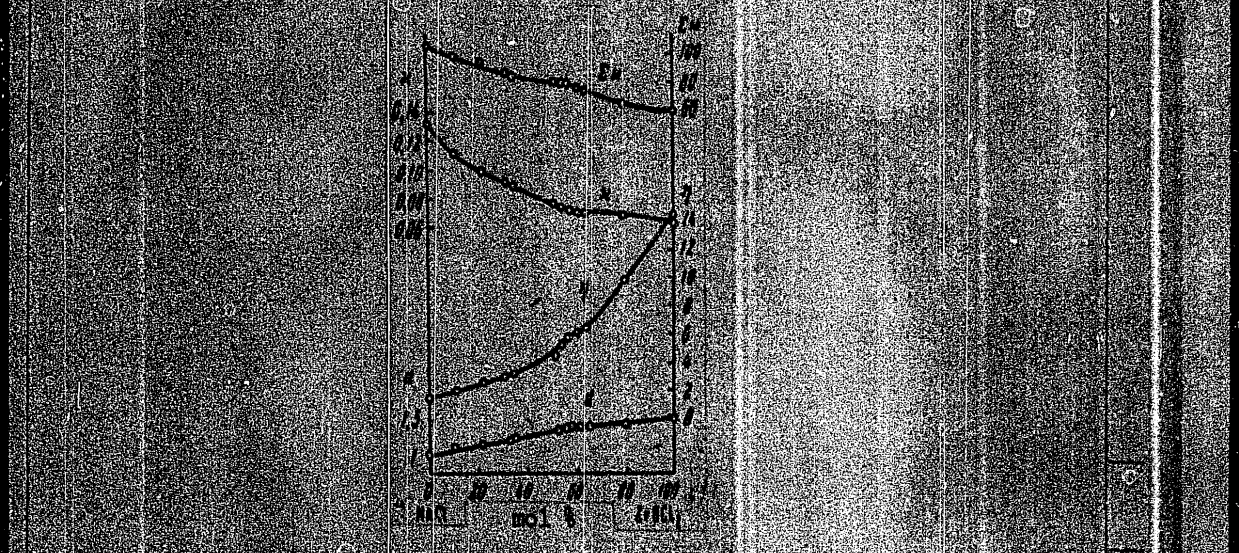


Fig. 2. Solubility in the $ZrOCl_2$-KCl-H_2O system at 25°C.

Card 4/4

L 63976-65

ACCESSION NR: AP5009951

ENCLOSURE: 01

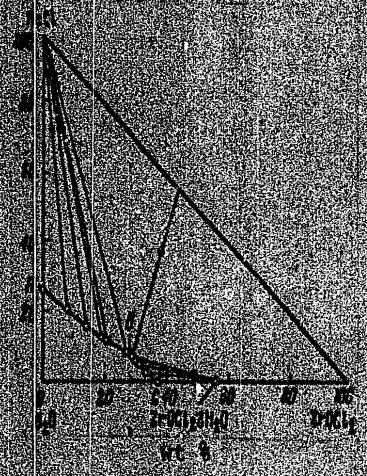
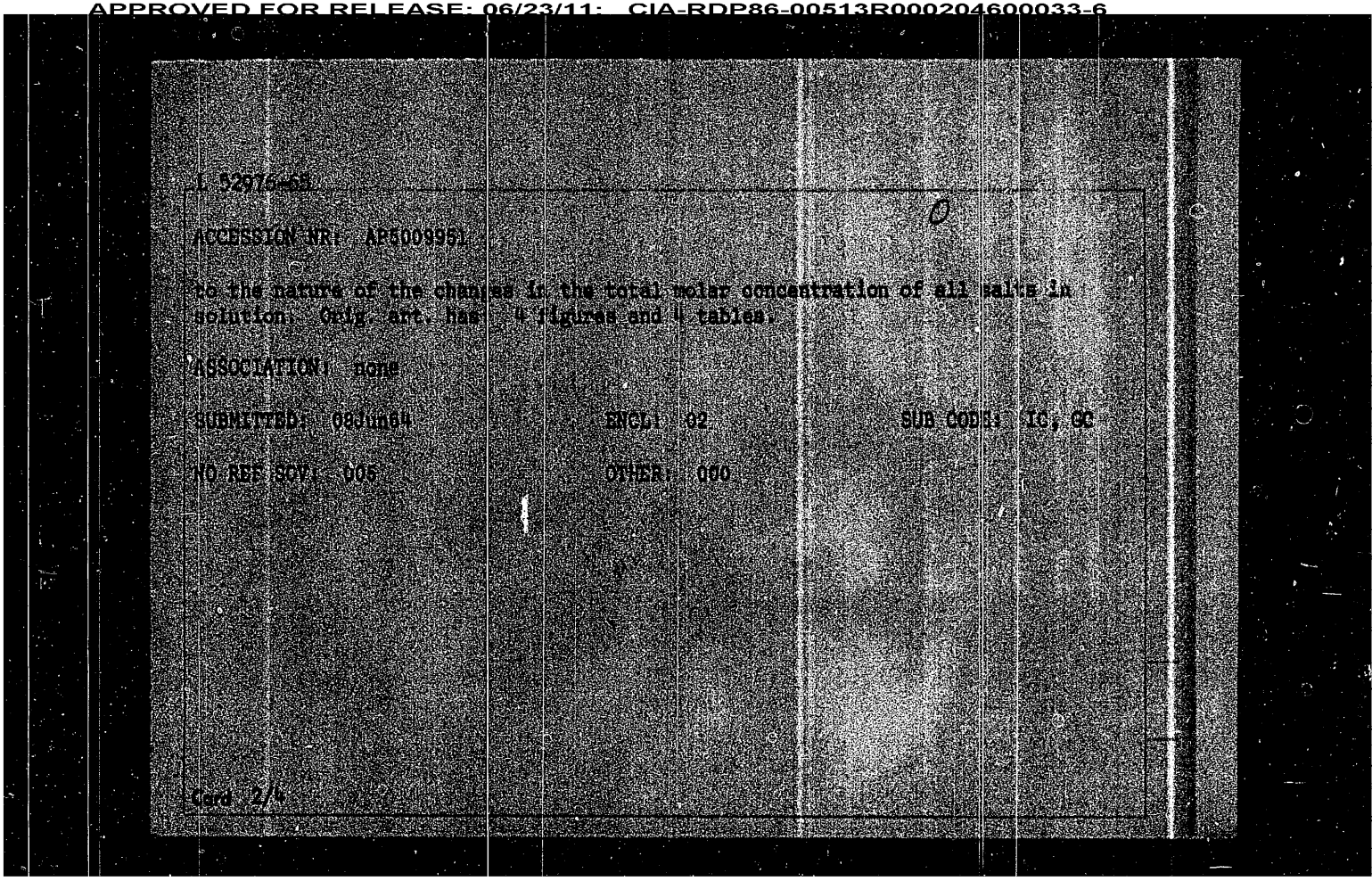


Fig. 1. Solubility in the $ZrOCl_2$-NaCl-H_2O system at 25°C.

Card 3/4



L 52974-65

ACCESSION NR: AP5009951

to the nature of the changes in the total molar concentration of all salts in solution. Orig. art. has: 4 figures and 4 tables.

ASSOCIATION: none

SUBMITTED: 08Jun64 ENCL: 02 SUB CODE: IC, GC

NO REF SOV: 006 OTHER: 000

Card 2/4

L 52976-65 EWT(m)/EPF(c)/EPR(n)-2/EWP(t)/EWP(b) Pr-4/Pu-4 IJP(c) JD

ACCESSION NR: AP5009951 UR/0078/65/010/004/0948/0949

AUTHOR: Belyayev, I. N.; Iobst, L. M. 23

TITLE: Zirconyl chloride-sodium chloride (potassium chloride)-water systems

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 4, 1965, 945-949

TOPIC TAGS: zirconyl chloride, sodium chloride, potassium chloride, solubility

ABSTRACT: The article presents data from physico-chemical studies of two systems: $ZrOCl_2$-NaCl-H_2O and $ZrOCl_2$-KCl-H_2O. In these systems the solubility was measured at 25±0.1°C. Resistivity, viscosity and density were measured along the isothermal saturation curve in saturated solutions. The solubility isotherms for both of these systems consist of two crystallization branches. One branch corresponds to the crystallization of pure components, NaCl and KCl, while the second branch refers to the crystallization of $ZrOCl_2 \cdot 8H_2O$. No double salts or solid solutions were found in these systems. The solubility isotherms of these systems are shown in Figs. 1 and 2 of the Enclosure. The nature of the changes in the isothermal properties in these systems as a function of the composition corresponds strictly

Card 1/4

L 34507-65

ACCESSION NR: AP5002808

ENCLOSURE: 01

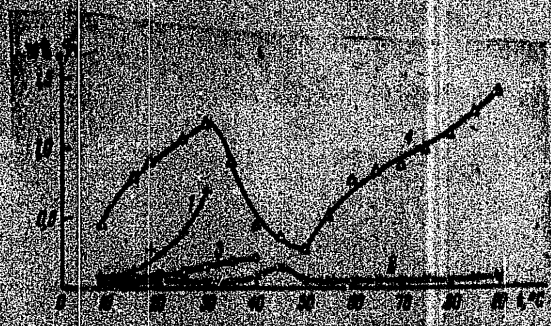
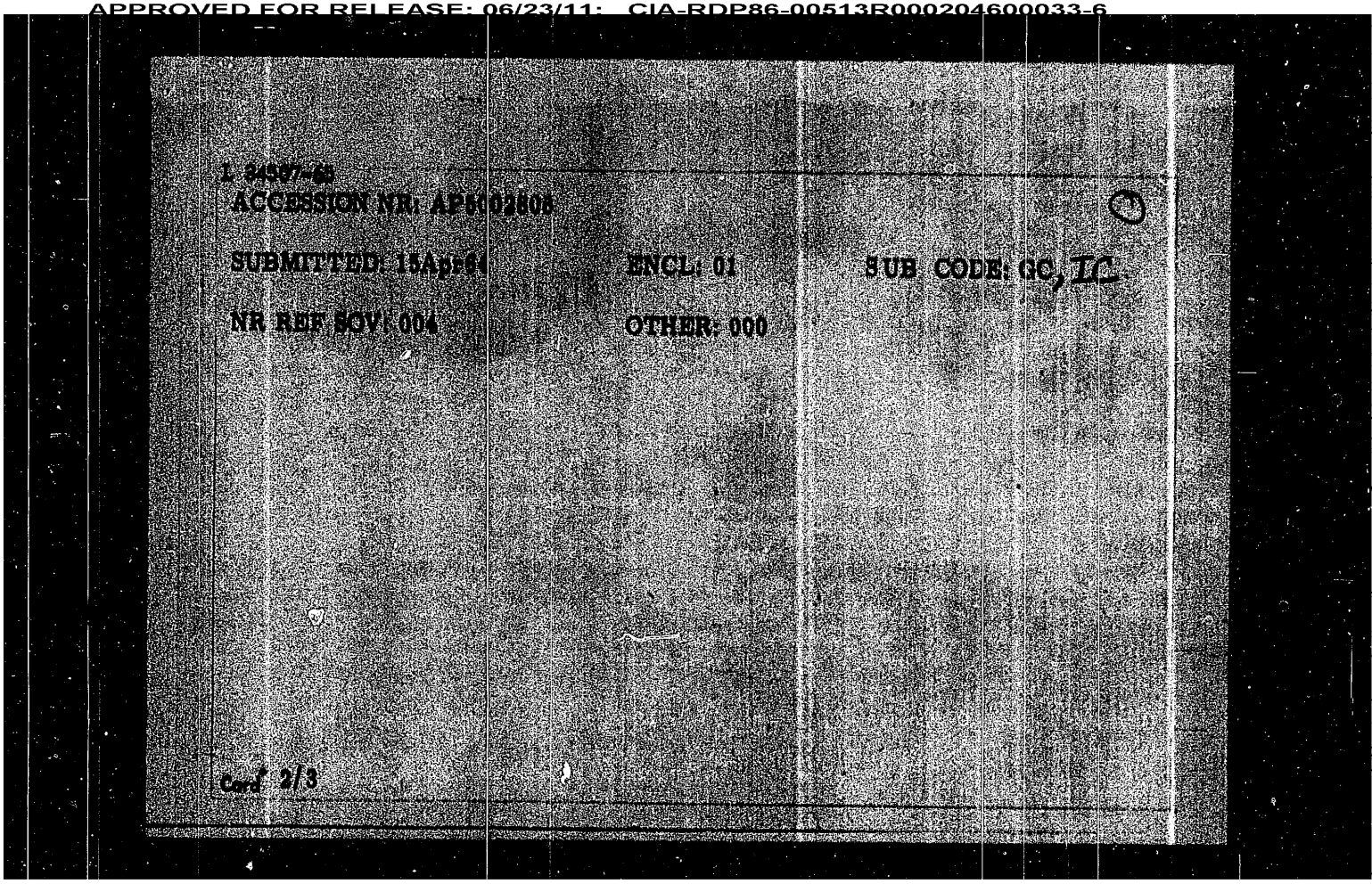


Fig. 1

Solubility polytherms of sodium, barium and lead titanyloxalates
1--sodium titanyloxalate $Na_2TiO(C_2O_4)_2 \cdot 2H_2O$; 2--barium titanyloxalate $BaTiO(C_2O_4)_2 \cdot 4H_2O$; 3--lead titanyloxalate $PbTiO(C_2O_4)_2 \cdot 4H_2O$; 4--lead titanyloxalate $PbTiO(C_2O_4)_2 \cdot H_2C_2O_4 \cdot 4H_2O$

Card 3/3



L 24307-65
ACCESSION NR: AP5002808

SUBMITTED: 15Apr64 ENCL: 01 SUB CODE: GC, IC

NR REF SOV: 004 OTHER: 000

Card 2/3

L 2507-66 EWT(m)/EWP(t)/ETI IJP(c) RM
ACCESSION NR: AP5012808 S/0078/65/010/001/0294/0296

AUTHOR: Novikova, L. V.; Belyayev, I. N.

TITLE: Investigation of the solubility of potassium sodium, barium and lead titanyloxalates

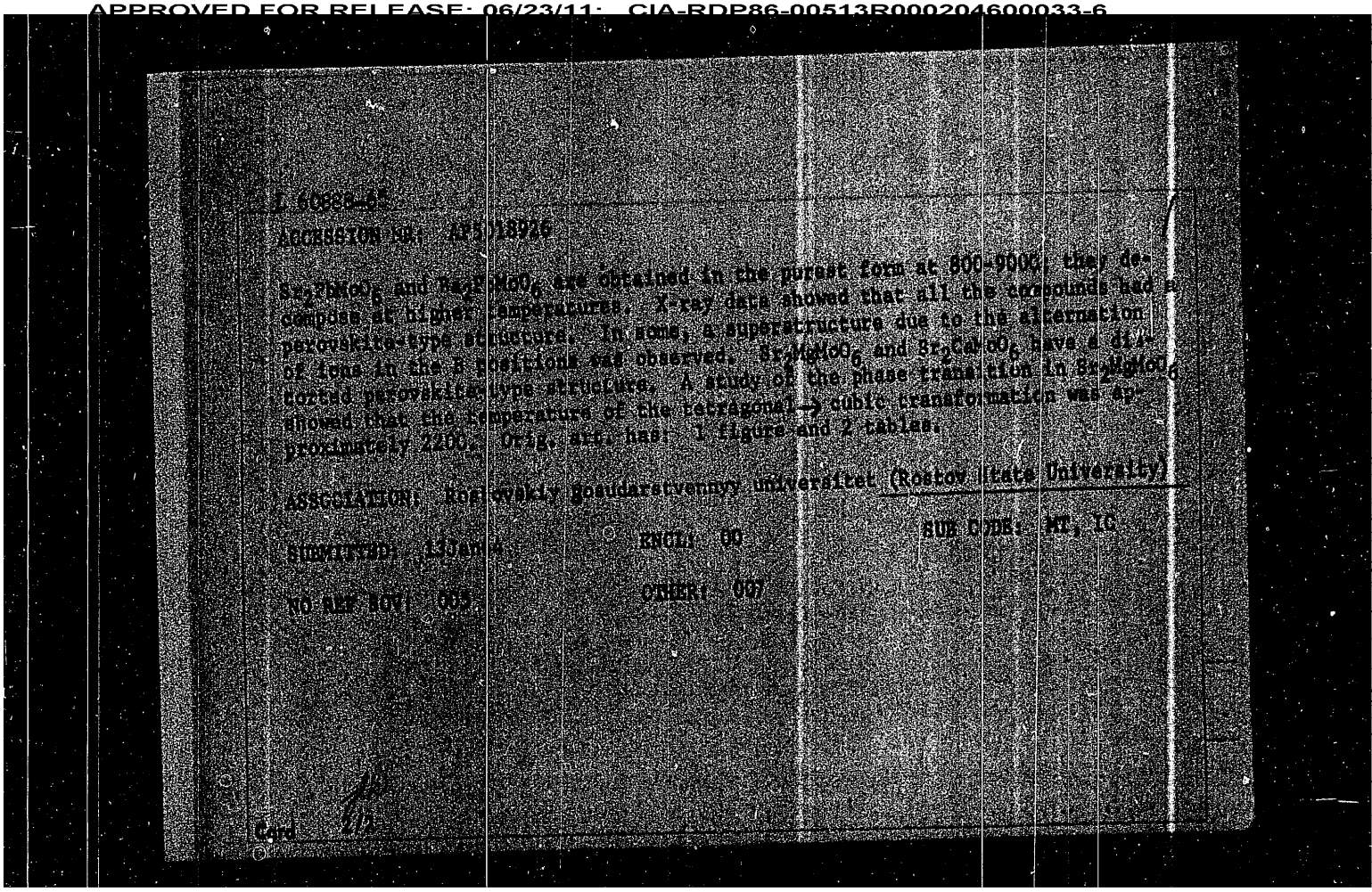
SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 1, 1965, 294-296

TOPIC TAGS: solubility, potassium titanyloxalate, sodium titanyloxalate, barium titanyloxalate, lead titanyloxalate

ABSTRACT: The polythermal solubility of K, Na, Ba and Pb titanyloxalates was determined. $K_2TiO(C_2O_4)_2 \cdot 2H_2O$ was the most soluble; its solubility increased from 1.64 to 46.31 wt. % from 10 to 60 C. The other compounds were fairly insoluble (fig.) and underwent significant hydrolysis at temperatures above those for which solubilities are shown in the figure. Orig. art. has: 2 figures and 1 table

ASSOCIATION: None

Card 1/3



L 60838-65

ACCESSION NR: AP5018926

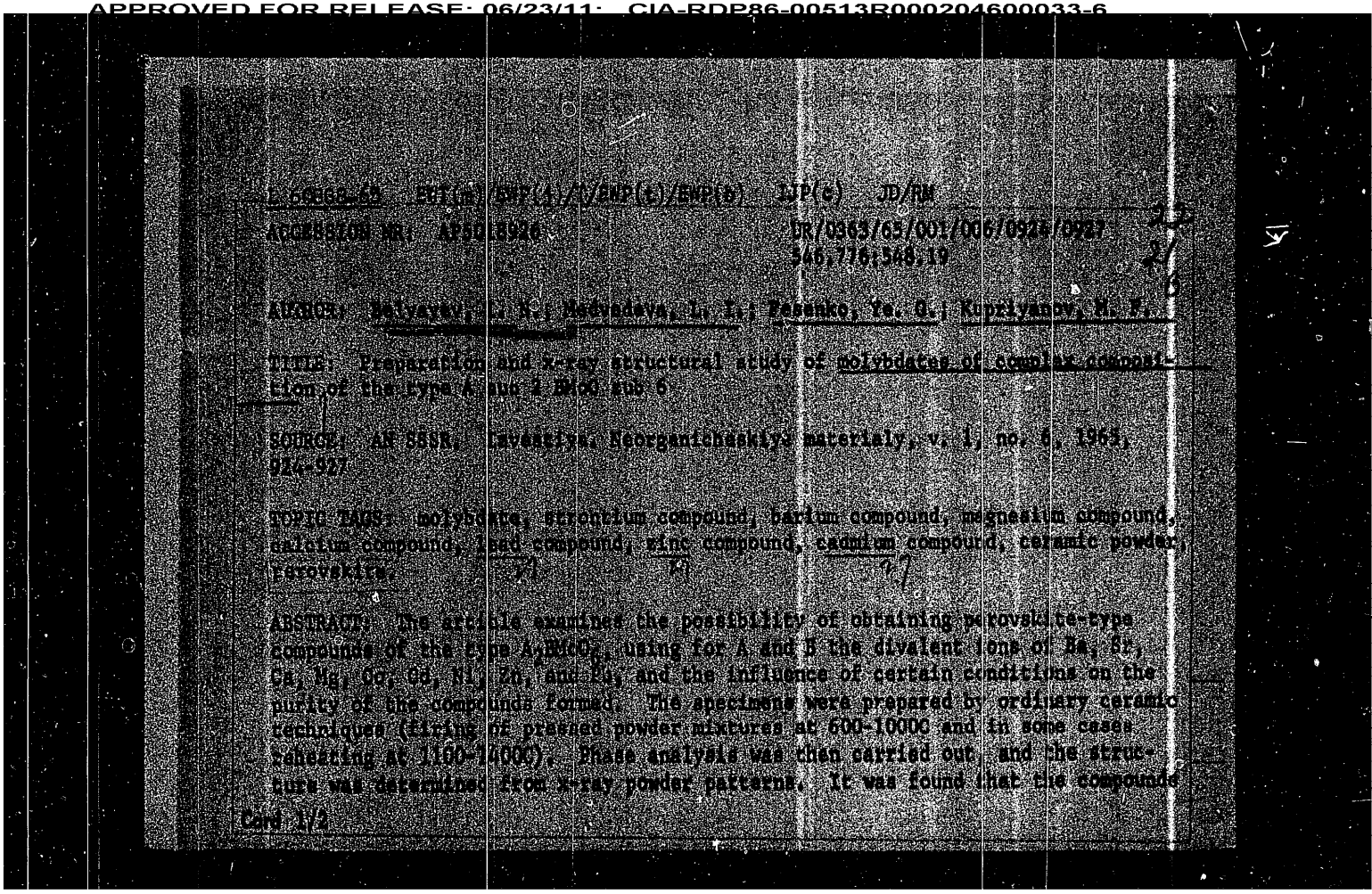
Sr_2YbNbO_6 and Sr_2FeMoO_6 are obtained in the purest form at 800-900C; they decompose at higher temperatures. X-ray data showed that all the compounds had a perovskite-type structure. In some, a superstructure due to the alternation of ions in the B positions was observed. Sr_2MgMoO_6 and Sr_2CaWO_6 have a disordered perovskite-type structure. A study of the phase transition in Sr_2MgMoO_6 showed that the temperature of the tetragonal→cubic transformation was 42° ± approximately 2200. Orig. art. has: 1 figure and 2 tables.

ASSOCIATION: Rostovskiy gosudarstvennyy universitet (Rostov State University)

SUBMITTED: 13Dec64 ENCL: 00 SUB CODE: MT, IC

NO REF SOV: 005 OTHER: 007

Card 2/2



L 60866-65 EEIT(m)/EWP(t)/EWP(b) IJP(c) JD/RM
ACC NR: AP5018926 UR/0363/65/001/006/0925/0927
546.776:548.19

AUTHOR: Polyanov, V. N.; Medvedeva, L. I.; Resenko, Ye. G.; Kupriyanov, M. F.

TITLE: Preparation and x-ray structural study of molybdates of complex composition of the type A_3BMoO_6

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 6, 1965, 925-927

TOPIC TAGS: molybdate, strontium compound, barium compound, magnesium compound, calcium compound, lead compound, zinc compound, cadmium compound, ceramic powder, perovskite

ABSTRACT: The article examined the possibility of obtaining perovskite-type compounds of the type A_3BMoO_6, using for A and B the divalent ions of Ba, Sr, Ca, Mg, Cd, Co, Ni, Zn, and Pb, and the influence of certain conditions on the purity of the compounds formed. The specimens were prepared by ordinary ceramic techniques (firing of pressed powder mixtures at 600-1000C and in some cases sintering at 1100-1400C). Phase analysis was then carried out, and the structure was determined from x-ray powder patterns. It was found that the compounds

Card 1/2

BEIYAYEV, I.N.; CHITKOVA, N.N.

Systems of chromates, molybdates, and tungstates of rubidium, cesium, and lead. Zhur. neorg. khim. 9 no.12:2754-2760 D '64.
(MIRA 18:2)

BELYAYEV, I.N.; CHIKOVA, N.N.

System Li_2So_4 - Cs_2SO_4 - $PbSO_4$. Zhur. neorg. khim. 9 no.3: 756-758 Mr '64. (MIRA 17:3)

ACCESSION NR: AP4024996

ASSOCIATION: Rostovskiy-na-Donu gosudarstvenny*y universitet (Rostov-on-Don State University)

SUBMITTED: 26Jun63 DATE ACQ: 16Apr64 ENCL: 02

SUB CODE: PH NO REF SOV: 002 OTHER: 003

Card 2/2

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204600033-6

ACCESSION NR: AP4024996 S/0070/64/009/002/0280/0281

AUTHORS: Belyayev, I. N.; Aver'yanova, L. N.; Belyayeva, I. I.

TITLE: New compounds with the structure of pyrochlore

SOURCE: Kristallografiya, v. 9, no. 2, 1964, 280-281

TOPIC TAGS: pyrochlore, lead, cadmium, titanium, zirconium, tin, tungsten, solid phase, cubic structure, defect, oxygen, x ray characteristic

ABSTRACT: The authors have presented data on new compounds having the general formula $A_2(B_{2-x}, B'_x)O_{6+x}$, where A represents ions of Pb and Cd; B ions of Ti, Zr, and Sn; and B' the hexavalent ion of W. These compounds were synthesized by solid-phase reactions. The x-ray characteristics of hkl lines are shown in Table 1 on the Enclosures. From these it may be seen that all the synthesized compounds have the cubic structure of pyrochlore with defects about oxygen. The authors point out that attempts to replace the W ion by Mo and the Pb or Cd ion by other bivalent metals have not yet been successful. Orig. art. has: 2 tables.

Card 1/2

BELYAYEV, I.N.; GOLOVANOVA, T.G.

Investigating the constitutional diagram of the system Rb_2O - V_2O_5. Izv. vys. ucheb. zav.; tsvet. met. 7 no. 4:117-120 '64. (MIRA 19:1)

1. Rostovskiy gosudarstvennyy universitet, kafedra obshchey i neorganicheskoy khimii.

ACCESSION NR: AP4009360 S/0078/64/009/001/0228/0229

AUTHOR: Belyayev, I. N.; Golovanova, T. G.

TITLE: Phase diagram of the $Cs_2CO_3(Ca_2O)$ -V_2O_5 system

SOURCE: Zhurnal neorganicheskoy khimii, v. 9, no. 1, 1964, 228-229

TOPIC TAGS: cesium carbonate, vanadium pentoxide, Cs_2CO_3-V_2O_5 phase diagram, cesium hexavanadate, cesium tetravanadate, cesium metavanadate, cesium pyrovanadate, cesium orthovanadate, 16 $Cs_2O \cdot 9V_2O_5$

ABSTRACT: The phase diagram of the Cs_2CO_3-V_2O_5 system shows 6 compounds (cesium hexavanadate $Cs_2O \cdot 3V_2O_5$, cesium tetravanadate $Cs_2O \cdot 2V_2O_5$, cesium metavanadate $Cs_2O \cdot V_2O_5$, cesium pyrovanadate $2Cs_2O \cdot V_2O_5$, cesium orthovanadate $3Cs_2O \cdot V_2O_5$, and the compound 16 $Cs_2O \cdot 9V_2O_5$), 5 eutectics and 2 peritectics (at 35 and 62.5% Cs_2O corresponding to 446 and 690C). Orig. art. has: 1 figure

Card 1/3

BELYAYEV, I.N.; CHIKOVA, N.N.

Ternary systems K_2SO_4 - Li_2SO_4 - Cs_2SO_4 and Li_2SO_4 - Rb_2SO_4 - $PbSO_4$. Zhur. neorg. khim. 8 no.6:1442-1449 Je '63. (MIRA 16:6)

(Alkali metal sulfates)
(Lead sulfate)

AID Nr. 994-2 20 June

PHASE EQUILIBRIA (Cont.)

S/078/63/008/005/013/021

PbO — V_2O_5 and Bi_2O_3 — PbO have previously been described. On the basis of all these diagrams and the thermal analysis of 24 sections of the ternary system, a diagram of the surface of primary crystallization of the system Bi_2O_3 — V_2O_5 — PbO was plotted. The system was shown to contain 11 solid phases, including the terriary compound $BiPb_3(VO_4)_3$, which melts with decomposition at 793°C, and 9 invariant points, 4 of which are eutectic. [BAO]

Card 2/2

BELYAYEV, I. N.
AID No. 994-2 20 June

PHASE EQUILIBRIA IN THE SYSTEM Bi_2O_3 — V_2O_5 — PbO (USSR)

Smolyaninov, N. P., and I. N. Belyayev. Zhurnal neorganicheskoy khimii, v. 8, no. 5, May 1963, 1219-1223. S/078/63/008/005/013/021

The system Bi_2O_3 — V_2O_5 has been studied for the first time by thermal and x-ray analysis and by dilatometry. The binary diagram shows that this system contains 4 compounds -- $7Bi_2O_3 \cdot V_2O_5$ (I), $BiVO_4$ (II), $Bi_4(V_2O_7)_3$ (III), and $Bi(VO_3)_3$ (IV) -- which melt at 955, 958, 832, and 720°C, respectively (I and II without decomposition, III and IV with decomposition). On crystallization from melts, I forms with Bi_2O_3 or II a continuous series of solid solutions which partially decompose in the solid state. Compounds II, III, IV, and V_2O_5 undergo phase transitions in the 200 to 280°C range. Binary diagrams for the systems

Card 1/2

Investigation of the system... S/078/63/008/002/006/012
B101/B186

The most important English-language reference is: E. C. Subbarao, J. Chem. Phys., 34, 695 (1961).

SUBMITTED: May 22, 1962

Card 3/3

Investigation of the system...

$Bi_{24}TiO_{38}$, $Bi_6Pb_2O_{11}$, Pb_2TiO_4 and PbO were determined. For the four ternary points the following compositions were found in mole%:

	Bi_2O_3	TiO_2	PbO	m.p., °C
E_1	63.5	0.5	36.0	680
E_2	29.5	1.0	69.5	599
P_1	70.0	8.0	22.0	775
P_2	49.0	2.0	49.0	608

Dilatometrical, thermographical and X-ray analysis of the cross sections of $Bi_4Ti_3O_{12}$ - $PbTiO_3$ and $Bi_2Ti_3O_9$ - $PbTiO_3$ proved the formation of $Bi_4PbTi_4O_{15}$ and of the new compound $Bi_2PbTi_4O_{12}$. The similarity between the powder patterns of $Bi_2PbTi_4O_{12}$ and those of $Bi_4Ti_3O_{12}$. $Bi_4PbTi_4O_{15}$ and $Bi_2SrTi_4O_{12}$ lead to the conclusion that $Bi_2PbTi_4O_{12}$ too may be regarded as a ferroelectric material with laminated structure. There are 5 figures and 4 tables.

Card 2/3

S/078/63/008/002/006/012
B101/B186

AUTHORS: Belyayev, I. N., Smolyaninov, N. P., Kal'nitskiy, N. R.

TITLE: Investigation of the system Bi_2O_3 - TiO_2 - PbO

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 8, no. 2, 1963, 384 - 388

TEXT: The binary system Bi_2O_3 - TiO_2 was investigated with the aid of the fusibility method up to a content of 30 mole% TiO_2. A new congruently melting compound, $Bi_{24}TiO_{38}$, m.p. 844°C, was found, which crystallizes in a cubic body-centered lattice (a = 9.05 ± 0.02 kX). Mixed with 2.5 mole% TiO_2 it forms a eutectic with the m.p. at 797°C and containing 10.0 mole% TiO_2 it forms a eutectic having the m.p. at 821°C. Additionally, through X-ray analysis, the compounds $Bi_4Ti_3O_{12}$ and $Bi_2Ti_3O_9$ were found. From dilatometric and thermographic investigations it followed that $Bi_2Ti_3O_9$ undergoes a phase transition between 180 and 260°C. In the ternary system Bi_2O_3 - TiO_2 - PbO the crystallization regions of the phases Bi_2O_3,

Card 1/3

BELYAYEV, I.N.; FILIP'YEV, V.S.; FESENKO, Ye.G.

Preparation and structure of some tungstates of the type M_3WO_6. Zhur.strukt.khim. 4 no.5:719-723 S-O '63. (MIRA 16:11)

1. Rostovskiy gosudarstvennyy universitet.

BELYAYEV, I.N.; GOLOVANOVA, T.G.

Interaction os sodium titanates with sodium vanadates in melts.
Zhur.neorg.khim. 7 no.12:2760-2764 D '62. (MIRA 16:2)
(Sodium titanate) (Sodium vanadate)

SMOLYANINOV, N.P.; BELYAYEV, I.N.

Investigation the system Bi_2O_3 - WO_3 - PbO. Zhur.neorg.khim. 7 no.11:2591-2595 N '62. (MIRA 15:12)
(Bismuth oxide) (Tungsten oxide)
(Lead oxide)

S/078/62/007/006/023/024
B110/B144

AUTHORS: Belyayev, I. N., Aver'yanova, L. N., Belyayeva, I. I.

TITLE: X-ray phase analysis of $MeTiO_3$-$MeWO_4$(MoO_4) systems

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 6, 1962, 1476

TEXT: The systems $MgTiO_3$-$MgWO_4$, $CaTiO_3$-$CaWO_4$, $SrTiO_3$-$SrWO_4$, $BaTiO_3$-$BaWO_4$, $ZnTiO_3$-$ZnWO_4$, $MgTiO_3$-$MgMoO_4$, $CaTiO_3$-$CaMoO_4$, $SrTiO_3$-$SrMoO_4$, $BaTiO_3$-$BaMoO_4$, and $ZnTiO_3$-$ZnMoO_4$ were subjected to qualitative radiographic phase analyses. $MgTiO_3$ and $ZnTiO_3$ were prepared from TiO_2 and the corresponding metal oxides by sintering at 1280°C for 15 hrs; $SrWO_4$ was prepared from solutions of Sr acetate and Na_2WO_4; $ZnWO_4$ from the oxides sintered at 1280°C for 15 hrs; $MgMoO_4$ and $ZnMoO_4$ from the corresponding oxides by sintering with MoO_3 at 1000°C for 15 hrs; $SrMoO_4$ from $SrCO_3$ and MoO_3; the other compounds were commercial products. These materials were ground,

Card 1/2

S/078/62/007/005/012/014
B101/B110

The ternary system Bi_2O_3 - MoO_3 - PbO

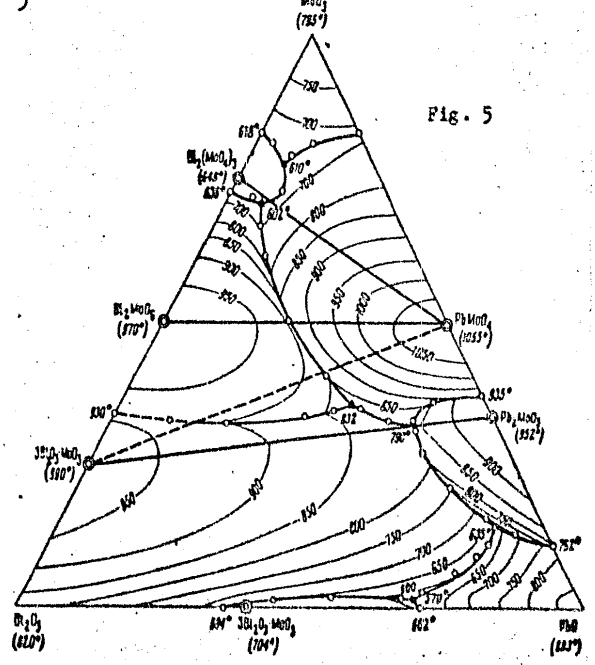


Fig. 5

Card 4/4

The ternary system Bi_2O_3 - MoO_3 - PbO

S/078/62/007/005/012/014
B101/B110

There are 6 figures and 3 tables.

SUBMITTED: June 10, 1961

Fig. 5. Orthogonal projection of the space diagram of the system Bi_2O_3 - MoO_3 - PbO on the composition triangle.

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S/078/62/007/005/012/014
B101/B110

The ternary system Bi_2O_3 - MoO_3 - PbO

Bi_2MoO_6 a eutectic at 636°C and 72.5% Mo, and with MoO_3 a eutectic at 618°C and 81.5% MoO_3. Two compounds were found in the system PbO - MoO_3: Pb_2MoO_5, m.p. 952°C, and $PbMoO_4$, m.p. 1065°C. Eutectics exist at 11.7; 37.5; and 82.5% MoO_3, their melting points are 762, 935, and 680°C, respectively. The surface of primary crystallization of the ternary system was also studied for the first time (Fig. 5). The greater part of the crystallization surface consists of solid solutions Bi_2O_3 + $3Bi_2O_2 \cdot MoO_3$. The solid solutions $3Bi_2O_3 \cdot MoO_3$ + Bi_2MoO_6 decompose within the ternary system into their components. The ternary system has six nonvariant points:

	m.p., °C	Composition, %		
		Bi_2O_3	MoO_3	PbO
E_1	610	22.5	72.0	5.5
E_2	602	15.0	78.0	7.0
E_3	790	14.5	32.5	53.0
E_4	635	8.5	14.5	77.0
E_5	570	29.0	2.0	69.0
P	832	24.0	35.5	40.5

S/078/62/007/005/012/014
B101/B110

18.9200

AUTHORS: Belyayev, I. N., Smolyaninov, N. P.

TITLE: The ternary system Bi_2O_3 - MoO_3 - PbO

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 5, 1962, 1126 -1131

TEXT: A systematic study of systems containing Bi_2O_3 for the preparation of new, utilizable compounds involved a study of the system Bi_2O_3 - MoO_3 - PbO. The binary systems Bi_2O_3 - MoO_3 and PbO - MoO_3 were completely investigated for the first time. Three congruent compounds were found in the former system: $Bi_2(MoO_4)_3$, m.p. 648°C; Bi_2MoO_6, m.p. 970°C; and $3Bi_2O_3 \cdot MoO_3$, m.p. 990°C. The latter compound forms solid solutions with Bi_2O_3 and Bi_2MoO_6. The solid solutions with Bi_2O_3 show neither maxima nor minima. The solid solutions of $3Bi_2O_3 \cdot MoO_3$ with Bi_2MoO_6 show a temperature minimum at 930°C and 33.3% MoO_3. The compound $Bi_2(MoO_4)_3$ forms with

Card 1/4

S/078/61/006/002/017/017
B017/B054

$PbTiO_3$		40% $BaTiO_3$ + +60% $Pb_3(PO_4)_2$		PbTiO		40% $BaTiO_3$ + +60% $Pb_3(PO_4)_2$	
I	*d, kX*	*I*	*d, kX*	*I*	*d, kX*	*I*	*d, kX*
4	3,83	2	3,86	4	1,38	4	1,37
2	3,54	1	3,52	1	1,35	Фон	—
1	3,01	Фон	—	5	1,33	5	1,33
9	2,81	8	2,81	5	1,29	4	1,29
6	2,74	4	2,73	3	1,23	2	1,23
1	2,45	—	—	5	1,18	5	1,18
8	2,28	7	2,28	5	1,15	4	1,14
2	2,05	2	2,05	2	1,12	1	1,12
1	2,01	1	2,00	2	1,096	1	1,099
7	1,93	6	1,93	9	1,080	7	1,081
1	1,73	1	1,72	—	—	2	1,071
4	1,64	2	1,64	9	1,057	8	1,056
9	1,59	9	1,59	9	1,044	8	1,043
1	1,51	Фон	—	2	1,012	1	1,014
5	1,41	5	1,41	2	1,000	1	1,001

Card 3/3

X-Ray Phase Analysis of the Systems $BaTiO_3$ - $Pb_3(PO_4)_2$, $PbTiO_3$ - $Ba_3(PO_4)_2$

S/078/61/006/002/017/017
B017/B054

$BaTiO_3$. The reaction between barium titanate and lead orthophosphate proceeds in the solid phase at 950 - 1000°C. The X-ray pictures of specimens of the system $Ba_3(PO_4)_2$ - $PbTiO_3$ with 37, 47, 50, 53, and 70% of $PbTiO_3$ contain only lines that are characteristic of lead titanate. A new reaction product between barium titanate and lead orthophosphate was not found. Yu. V. Pamyatkin is mentioned. There are 1 table and 8 Soviet references.

SUBMITTED: April 12, 1960

Card 2/3

S/078/61/006/002/017/017
B017/B054

AUTHORS: Aver'yanova, L. N., Belyayev, I. N.

TITLE: X-Ray Phase Analysis of the Systems $BaTiO_3$ - $Pb_3(PO_4)_2$, $PbTiO_3$ - $Ba_3(PO_4)_2$

PERIODICAL: Zhurnal neorganicheskoy khimii, 1961, Vol. 6, No. 2, pp. 501 - 503

TEXT: The systems $BaTiO_3$ - $Pb_3(PO_4)_2$ and $PbTiO_3$ - $Ba_3(PO_4)_2$ were studied by X-ray phase analysis. The investigation was made by the powder method with a УРС-70-К1 (URS-70-K1) apparatus. A table indicates the lattice spacings and the intensity lines of the X-ray pictures of $PbTiO_3$ and of a mixture of 40% of $BaTiO_3$ + 60% of $Pb_3(PO_4)_2$. The line intensities of lead titanate are weakened by addition of barium titanate; they disappear completely in the X-ray pictures of specimens with 5, 9, and 10% of

Card 1/3

BELYAYEV, I.N.

Phase diagrams of systems including molybdates and tungstates of alkali metals and lead. Zhur.neorg.khim. 6 no.5:1178-1188 My '61. (MIRA 14:4)

(Systems (Chemistry))

S/058/62/000/004/098/160
A061/A101

AUTHOR: Belyayev, I. N.

TITLE: Preparation of barium titanate single crystals under nearly isothermal conditions

PERIODICAL: Referativnyy zhurnal, Fizika, no. 4, 1962, 15, abstract 4E132 (V sb. "Rost kristallov. T. 3", Moscow, AN SSSR, 1961, 447-450, Discuss. 501-502)

TEXT: Homogeneous single-domain barium titanate single crystals can be obtained from a mixture of sodium and potassium carbonates under nearly isothermal conditions in hermetically sealed Armco steel crucibles at temperatures between 900 and 1,000°C.

[Abstracter's note: Complete translation]

Card 1/1

FILIP'YEV, V.S.; SMOLYANINOV, N.P.; FESENKO, Ye.G.; BELYAYEV, I.N.

Preparation of $BiFeO_3$ and determination of its unit cell.
Kristallografiia 5 no. 6:958-959 N-D '60. (MIRA 13:12)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.
(Bismuth ferrate)

BELYAYEV, I.N.

Phase separation in liquid inorganic systems. Usp. khim. 29 no.7: 899-912 Jl '60. (MIRA 13:7)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.
(Systems (Chemistry))

BELYAYEV, I.N.; DOROSHENKO, A.K.

Interaction of potassium and silver sulfates and molybdates during crystallization from their melts. Uch.zap.RGU no.60: 217-223 '59. (MIRA 14:10)
(Systems (Chemistry)) (Salts)

82789

S/058/60/000/004/003/016
A003/A001

The Dielectric Characteristics of Ceramic Dielectrics of the TiO_2-SnO_2 System

the field of high-frequency radio-engineering.

A.A. Fotchenkov

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

82789

S/058/60/000/004/003/016
A003/A001

5.4600(A)
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Translation from: Referativnyy zhurnal. Fizika, 1960, No. 4, p. 204, # 9032

AUTHORS: Khodakov, A.L., Belyayev, I.N.

TITLE: The Dielectric Characteristics of Ceramic Dielectrics of the TiO_2-SnO_2 System

PERIODICAL: Uch. zap. Fiz.-matem. fak. Rostovsk.-n./D un-t, 1959, Vol. 46, No. 7, pp. 83-86

TEXT: ε and tg δ of ceramic samples of various composition (from 0% SnO_2-100% TiO_2 to 85%-SnO_2-15% TiO_2) were measured within the frequency range of 50-10^7 cps. ε of the sample with the composition 85% SnO_2-15% TiO_2 at the frequency 10^6 cps decreases more than 4 times compared to ε in TiO_2. The temperature coefficient varies from $-8.0 \cdot 10^{-4}$ (100% TiO_2) to $+3.5 \cdot 10^{-4}$ (15% TiO_2), respectively, passing through zero at 30% TiO_2. The considerable relaxation polarization in samples with a low SnO_2 content decreases with its increase and disappears completely at a composition with 25% SnO_2. In these compositions a small tg δ is observed at high-frequencies which makes their use promising in

Card 1/2

BELYAYEV, I. N., Doc Chem Sci (diss) -- "The physico-chemical properties of titanates of the alkali and certain divalent metals". Rostov na Donu, 1959. 30 pp (Inst of Gen and Inorganic Chem im N. S. Kurnakov of the Acad Sci USSR), 200 copies (KL, No 22, 1959, 109)

intensification of covalence of B-O bonds (as compared to Ti-O bonds in $BaTiO_3$) by replacing Ba- and Ti-ions by others an extension of the temperature range within which the piezoelectric properties exist will occur. A reduction of covalence will, however, narrow this range. The function of the A-ion in ABO_3 and in other compounds is that of controlling the covalence of the B-O bond. The investigated dependence of piezoelectric properties on the character of the chemical bond can be used as a criterion for discovering new piezoelectric and anti-piezoelectric materials. There are 5 figures and 22 references, 12 of which are Soviet.

ASSOCIATION: Rostovskiy-na-Donu gos. universitet
(Rostov-na-Donu State University)

24(3),24(2)

AUTHOR: Belyayev, I. N. SOV/48-22-12-6/33

TITLE: The Piezoelectric Properties of Crystals of the Perovskite Type and Their Dependence on the Character of the Chemical Bond (Zavisimost' segnetoelektricheskikh svoystv kristallov tipa perovskita ot kharaktera khimicheskoy svyazi)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958, Vol 22, Nr 12, pp 1436-1440 (USSR)

ABSTRACT: The presence of mixed ionic-covalent bonds B-O is an essential condition for the formation of a spontaneous polarization of the ABO_3-type and of other compounds. Only the presence (existence) of covalent bonds B-O (in addition to ionic ones) can - owing to their directivity - lead to the formation of non-equivalent mutually not-compensated bonds and, consequently, to not-compensated dipole moments also. On the basis of the example of $BaTiO_3$, the present investigation showed that non-equivalent not-compensated chemical bonds (spontaneous polarization) form only in lattices with infinite oxygen structure for the very reason that the titan and oxygen ions tend to gain their proper directivity of covalent bonds. It was shown that through

Card 1/2

AUTHOR: Belyayev, I. N. SOV/78-3-12-33/36

TITLE: The Cleavage in the Systems AX - BY (Rasslaivaniye v sistemakh AX - BY)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 12, pp 2805-2806 (USSR)

ABSTRACT: The visual-polythermal methods were used to investigate the melts of 41 systems AX - BY in cleavage. 22 systems involving lead oxide, 18 systems including chlorides and bromides of silver, and one system containing cadmium bromide were investigated. The components AX are simple compounds of lead oxide, chlorides and bromides of silver, and cadmium bromide. The components BY are salts of the alkali metals. The anions X and Y differ greatly from one another. The cations of the simple compound A have 18 or 18+2 electrons.
There are 1 table and 1 Soviet reference.

SUBMITTED: July 11, 1958

Card 1/1

VI. The Interaction of Titanates and Pyrophosphates of Potassium and Lithium in the Crystallization From the Melt

78-2-26/43

potassium orthophosphate which forms as a result of the influence of the pyrophosphate and titanate of potassium, three phases L, M and N which develop by the influence of the titanate and pyrophosphate of lithium, and lithium--titanate-phosphate without an exactly determined composition. The occurrence of the potassium-orthophosphate phase as well as of the lithium-titanate-phosphate phase shows that this system is unstable and does not possess any eutectic points at the liquidus surface. There are 2 figures, 2 tables, and 6 references, all of which are Slavic.

SUBMITTED: April 29, 1957

AVAILABLE: Library of Congress

Card 2/2

Belyayev, I. N.

AUTHORS: Belyayev, I. N., Sigida, N. P. 78-2-20/43

TITLE: VI. The Interaction of Titanates and Pyrophosphates of Potassium and Lithium in the Crystallization From the Melt (VI. Vzaimodeystviye titanatov i pirofosfatov kaliya i litiya pri kristallizatsii iz rasplavov)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 2, pp. 440-446 (USSR)

ABSTRACT: The present paper reports on the investigations concerning the systems Li, K/TiO_3, P_2O_7.

The system Li_2TiO_3-$K_4P_2O_7$ was investigated as far as 36% Li_2TiO_3. In this concentration range three phases were determined: phases of the components and potassium orthophosphate. The system K_2TiO_3-$Li_4P_2O_7$ was investigated from 0 - 24% and 80 - 100% $Li_4P_2O_7$. In this concentration range phases of K_2TiO_3, potassium orthophosphate, Li_2TiO_3 and lithium titanate were determined beside the phases of the components. In the system with the components K_2TiO_3, Li_2TiO_3, $K_4P_2O_7$, $Li_4P_2O_7$ five phases were determined:

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78-2-25/43

V. The Interaction of Sodium Titanate and Sodium Silicate in the Crystallization From the Melt. Investigation of the Ternary System Na_2SiO_3-Na_2TiO_3-TiO_2

The titanate-silicate of sodium was also determined. The obtained results show that the system Na_2TiO_3-Na_2SiO_3 in the ternary system Na_2-TiO_2-SiO_2 is unstable and cannot be considered to be a binary system. It is shown that the ternary system of the type AX-AY, in which the third phase is no compound of the components, may predominantly be met in systems of silicates and titanates, pyrophosphates and titanates, molybdates and titanates, vanadates and titanates, i.e. in systems whose salts are acid-formers and show a tendency to polymerization. There are 4 figures, 3 tables, and 7 references, 5 of which are Slavic.

SUBMITTED: April 13, 1957

AVAILABLE: Library of Congress.

Card 2/2

Belyayev, I. N. 78-2-25/43

AUTHORS: Belyayev, I. N., Sigida, N. P.

TITLE: V. The Interaction of Sodium Titanate and Sodium Silicate in the Crystallization From the Melt (Vzaimodeystviye titanatov i silikatov natriya pri kristallizatsii iz rasplavov) Investigation of the Ternary System Na_2SiO_3-Na_2TiO_3-TiO_2 (Issledovaniye troynoy sistemy Na_2SiO_3-Na_2TiO_3-TiO_2)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol.3, Nr 2, pp.433-439 (USSR)

ABSTRACT: The surface of the primary crystallization of the ternary system Na_2O-TiO_2-SiO_2 was investigated. It was shown that in the system Na_2TiO_3-Na_2SiO_3 the third and fourth phase represent acid sodium-titanate. It became evident that the phases α and β in the systems Na_2TiO_3-Na_2SiO_3 are titanatosilicates and one and the same compound. Their composition is as follows:

α - 13 Na_2O · 13 TiO_2 · SiO_2 with a melting point of 982°C.

β - 13 Na_2O · 13 SiO_2 · TiO_2 with a melting point of 975°C.

IV. The Interaction of Titanates and Phosphates of Potassium in the Crystallization from the Melts. Investigations of the Ternary System K_2TiO_3-$K_4P_2O_7$-TiO_2 and K_2TiO_3-$K_4P_2O_7$-K_3PO_4. 78-2-24/43

forms for compounds, two of which have the same melting point at 844-833° C and two of which have different melting points at 863°C and 939° C. Three eutectic points with 4%, 11,5% and 18,5% TiO_2 lie near 822, 817 and 826° C. The system $K_4P_2O_7$-TiO_2 was investigated as far as 40% TiO_2. The system K_2TiO_3-$K_4P_2O_7$-K_3PO_4 is characterized by the fact that potassium orthophosphate and potassium titanate develop between the pyrophosphate and potassium titanate. In the systems of the titanates and pyrophosphates of potassium and sodium the following transformations take place: Pyrophosphates are in the presence of metatitanates converted to orthophosphates, the titanates are in the presence of pyrophosphates converted to more acid titanates or titanic oxide. There are 5 figures, 3 tables, and 10 references, 8 of which are Slavic.

SUBMITTED: April 13, 1957

AVAILABLE: Library of Congress

Card 2/2

Belyayev, I. N.

AUTHORS: Belyayev, I. N., Sigida, N. P. 78-2-24/43

TITLE: IV. The Interaction of Titanates and Phosphates of Potassium in the Crystallization from the Melts (IV. Vzaimodeystviye titanatov i fosfatov kaliya pri kristallizatsii iz rasplavov). Investigations of the Ternary System K_2TiO_3-$K_4P_2O_7$-TiO_2 and K_2TiO_3-$K_4P_2O_7$-K_3PO_4 (Issledovaniye troynykh sistem K_2TiO_3-$K_4P_2O_7$-TiO_2 i K_2TiO_3-$K_4P_2O_7$-K_3PO_4).

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 2, pp. 425-432 (USSR).

ABSTRACT: The liquidus surface of the systems K_2TiO_3-$K_4P_2O_7$-TiO_2 and K_2TiO_3-$K_4P_2O_7$-K_3PO_4 was investigated. It was found that the third phase in the liquidus of the system K_2TiO_3-$K_4P_2O_7$ represents a potassium orthophosphate which is formed according to the following reaction:

$$x\ K_2TiO_3 + y\ K_4P_2O_7 = 2y\ K_3PO_4 + K_2Ti_xO_{(2x+1)}\ (\text{or } x\ TiO_2).$$

The system K_2TiO_3-$K_4P_2O_7$ was only investigated in the range of 0-7% and of 82,5-100% $K_4P_2O_7$. The domain of 7-82,5% $K_4P_2O_7$ cannot be examined by visual-polythermal methods due to the higher temperatures of the melt. The system K_2TiO_3-$K_4P_2O_7$-TiO_2

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system up to 1200°. III and II produce a eutectic at 23.5% of II, melting point 874°; III and V produce a eutectic with 61% of V, melting point 632°. The liquidus surface of the irreversibly reciprocal system Li, Na // F, TiO_3 was studied by the visual-polythermal method. II and III are a stable pair of salts; the incongruent ternary compound $4NaF.5Li_2TiO_3.13Na_2TiO_3$ is produced; its crystallization area (CA occupies 4.5% of the total CA of the system. The CA of IV is 1.3%. The CA of II is extraordinarily large 78.9%). The studied system is similar to systems, in which $BaTiO_3$ takes part, and differs essentially from the analogous silicate system.

III. II and K_2TiO_3 (VI) produce a eutectic, melting point 750°, with 11.5% of II. The eutectic of VI and K_2F_2 (VII) contains 59% of VI, melting point 752°. The eutectic of VII and V con-

BELYAYEV, I.N.

USSR/Physical Chemistry - Thermodynamics, Thermochemistry, Equilibria, Physical-Chemical Analysis, Phase Transitions. B-8

Abs Jour: Referat. Zhurnal Khimiya, No 3, 1958, 7151.

Author : I.N. Belyayev, N.P. Sigida.
Inst :
Title : II. Interaction of Lithium and Sodium Titanates and Fluorides.
III. Interaction of Lithium and Potassium Titanates and Fluorides.

Orig Pub: Zh. neorgan. khimii, 1957, 2, No 5, 1119 - 1127; 1128-1133.

Abstract: II. Systems consisting of Li and Na titanates and fluorides were studied by the thermographic and visual-polythermal methods. The system Na_2TiO_3 (I) - Li_2TiO_3 (II) has an eutectic point at 984° and 16% of II (the composition is in equ. ## everywhere). The incongruently melting (at 20% of Na_2F_2 and 918°) $4Na_2TiO_3$. NaF (IV) is forming in the I - Na_2F_2 (III) system; the eutectic of IV and III contains 35% of III and melts at 898°. There is no noticeable solubility in the II - Li_2F_2

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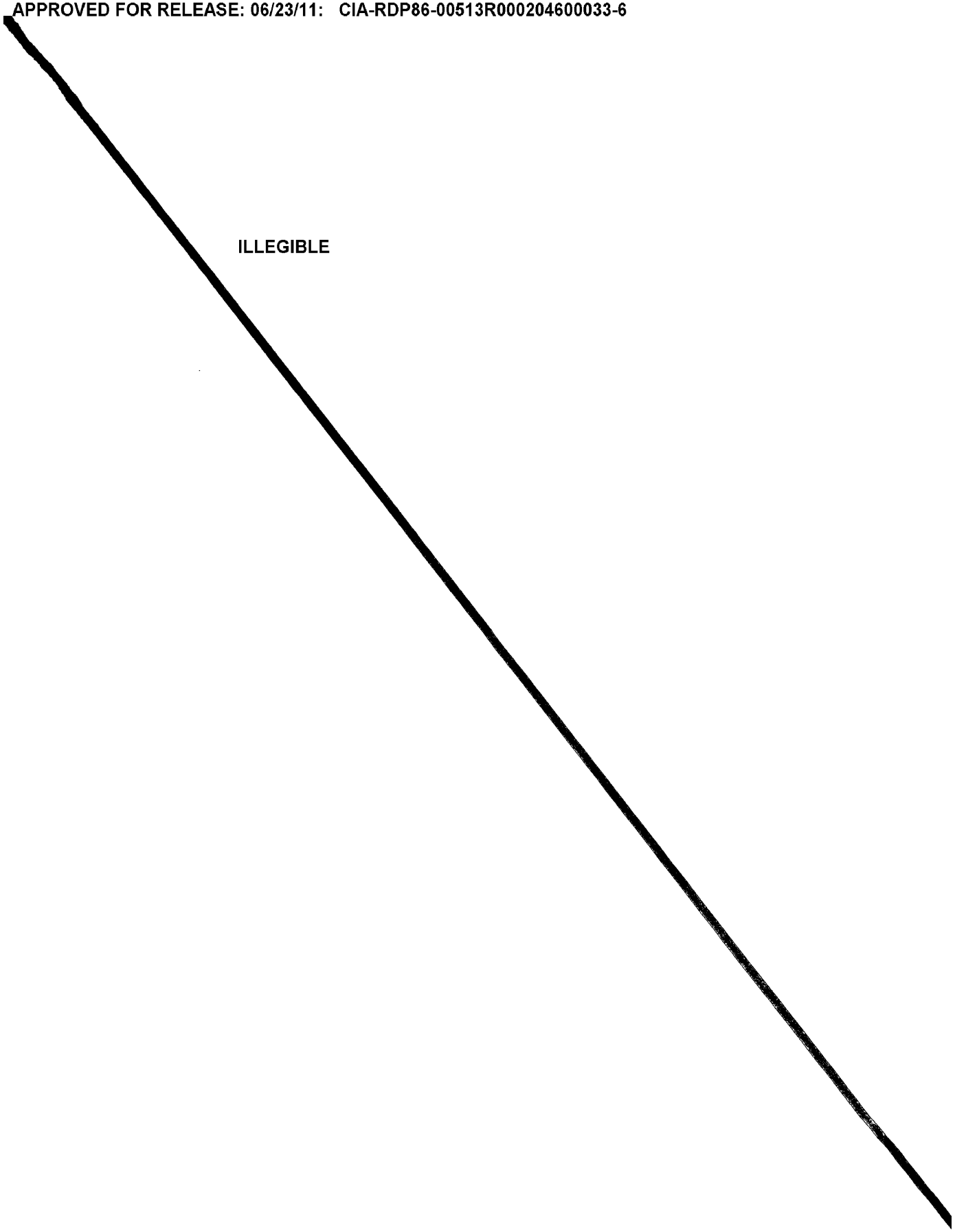

Category: USSR / Physical Chemistry
Thermodynamics. Thermochemistry. Equilibrium. Physico-chemical analysis. Phase transitions. B-8

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29947

fate - molybdate systems of alkali metals, toward combination of cathion having an 18- or (18 + 2)-electron shell, with an anion comprising in its composition an element with an incomplete d-electron shell.

Card : 2/2 -66-

БЕЛЯЕВ И. Н.

Category: USSR / Physical Chemistry
Thermodynamics. Thermochemistry. Equilibrium. Physico-chemical analysis. Phase transitions. B-8

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29947

Author : Belyayev I. N., Doroshenko S. S.
Inst : not given
Title : Investigation of Interaction of the Sulfates and Molybdates of Lithium and Silver in Melts

Orig Pub: Zh. obshch. khimii, 1956, 26, No 7, 1816-1820

Abstract: On the basis of data secured by the visual-polythermal method, the liquidus diagram has been plotted for the system Li, Ag // SO_4, MoO_4. Exchange reaction is shifted toward formation of Li_2SO_4 - Ag_2SO_4 (stable diagonal section) more sharply than in the previously studied system Na, Ag // SO_4, MoO_4 (RZhKhim, 1954, 47827). There has been confirmed the previously stated proposition (see reference cited above) concerning the direction of exchange reaction, in sul-

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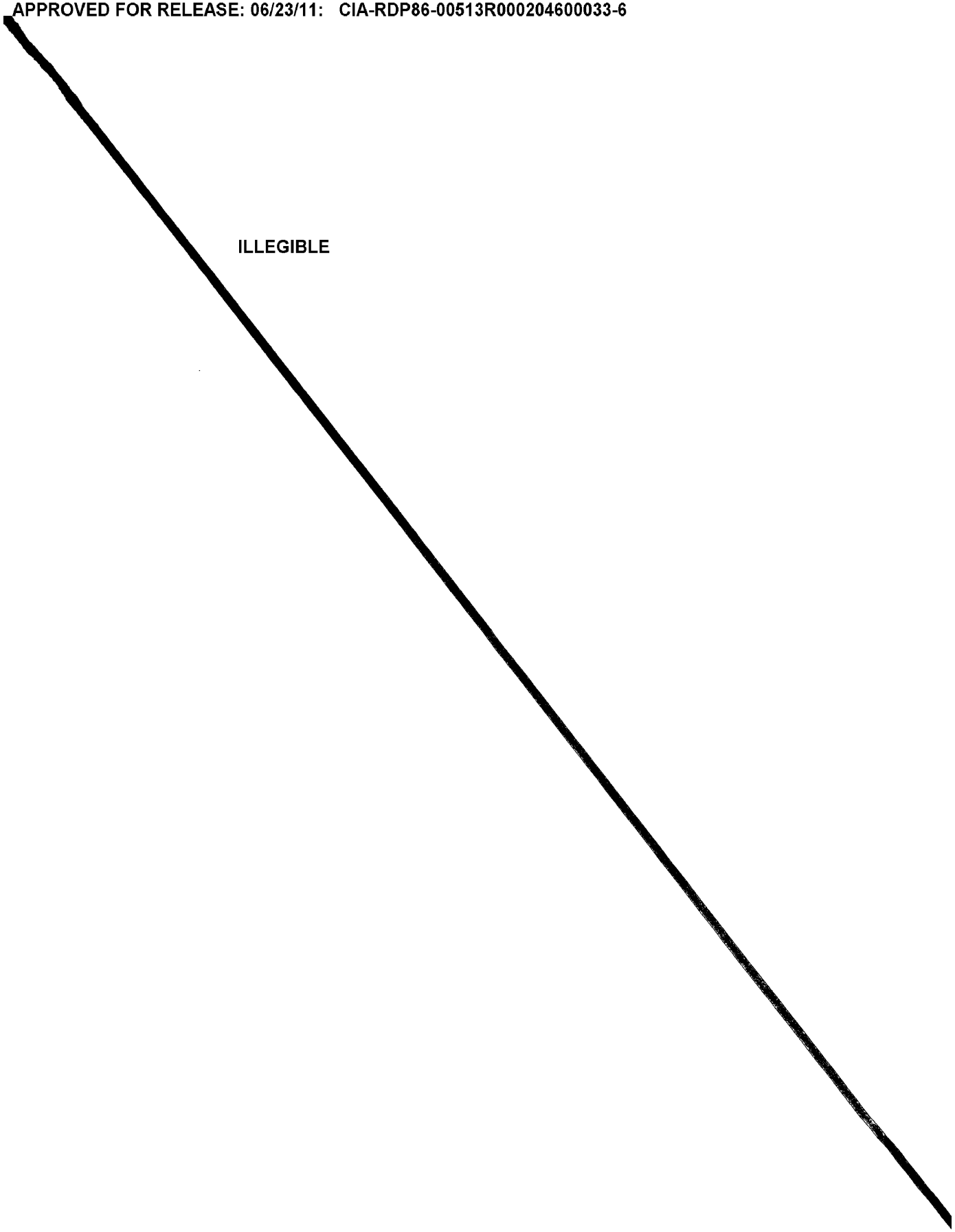

BELYAYEV, I. N.

USSR/Physical Chemistry - Thermodynamics, Thermochemistry, Equilibria, Physical-Chemical Analysis, Phase Transitions. B-8

Abs Jour: Referat. Zhurnal Khimiya, No 3, 1958, 7151.

Author : I.N. Belyayev.
Inst :
Title : Exchange Decomposition in Fuses and Chemical Bond Character.

Orig Pub: Zh. neorgan. khimii, 1956, 1, No 7, 1501-1511.

Abstract: The polarities of halide molecules of metals of the I and II groups of D.I. Mendeleyev's system were calculated. Equilibria and the direction of exchange reaction in ternary reciprocal systems of such salts depending on the relationship among the molecule polarities were discussed. The discovered dependences are illustrated by real systems borrowed from bibliographical sources.

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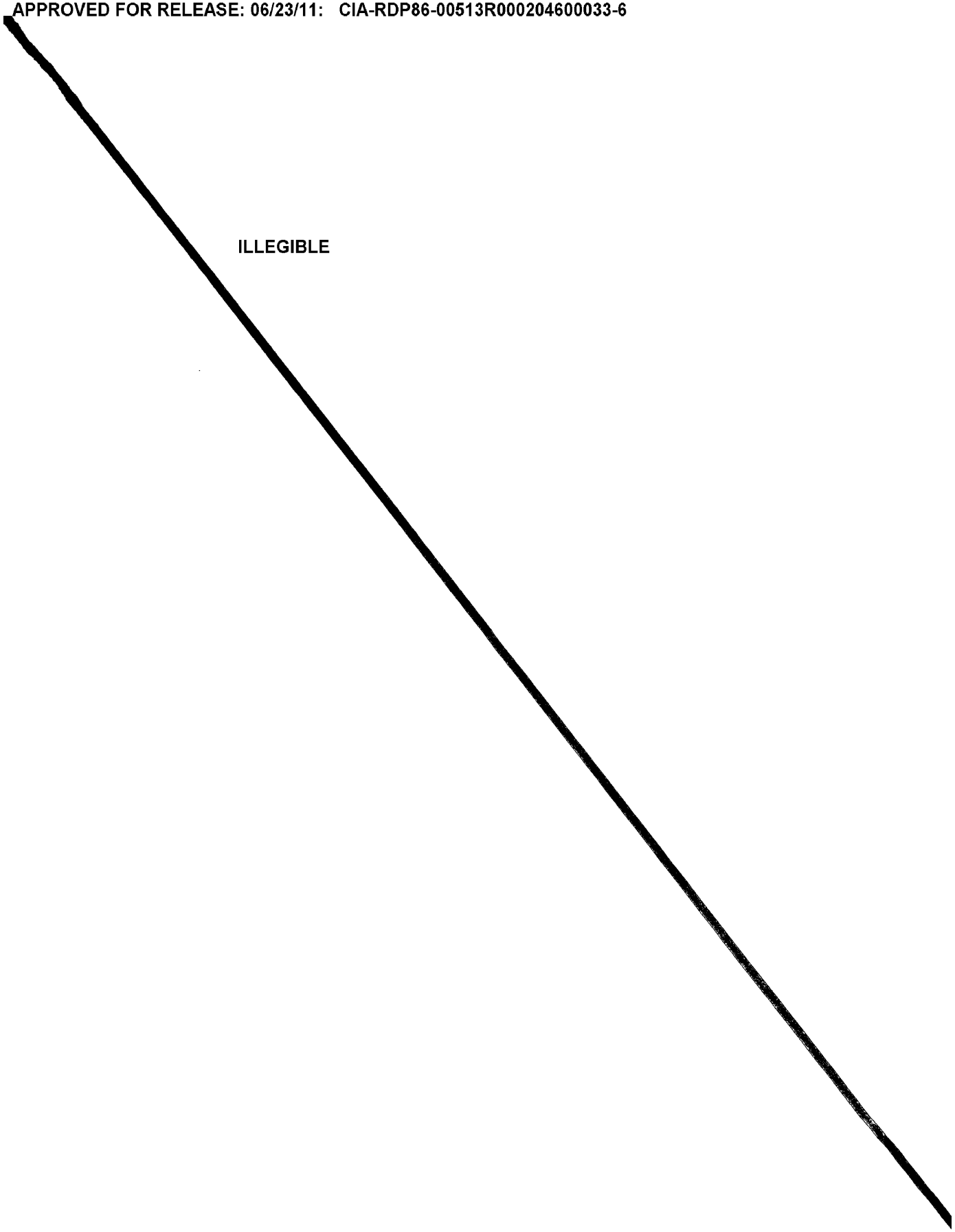


BELYAYEV, I.N.

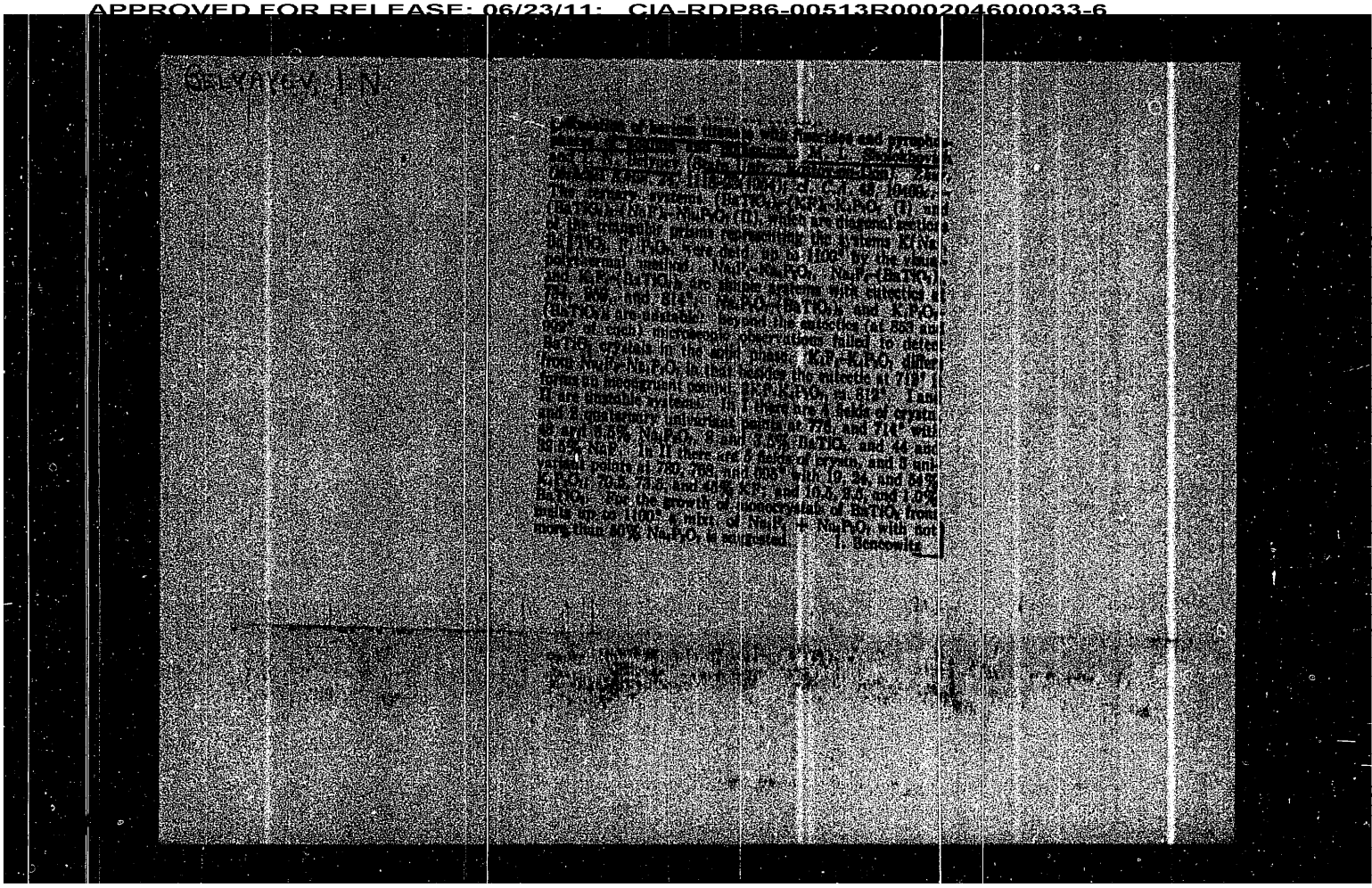
USSR.

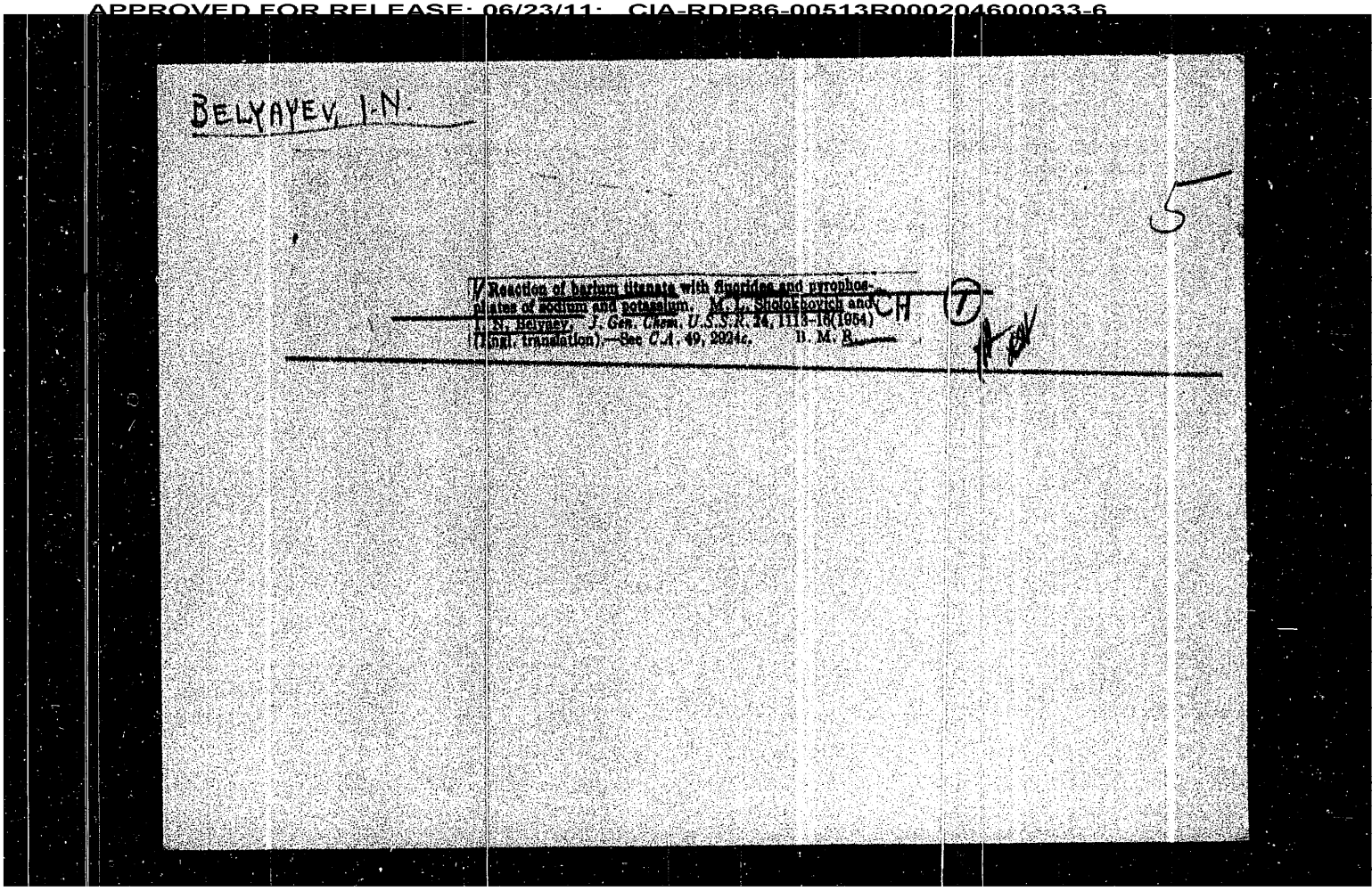
Double decomposition in a reciprocal system of sulfates and tungstates of lithium and lead. I. N. Belyaev (State Univ., Rostov-on-Don). *Zhur. Obshchei Khim.* 25, 230-4 (1955); *J. Gen. Chem.* (U.S.S.R.) 25, 213-16(1955)(Engl. translation).—Melting (crystn.) points of 2- and 3-component mixts. of these salts in varying proportions were detd. Li_2WO_4-$PbWO_4$ had one eutectic at 708° (16.5 mol. % $PbWO_4$); $LiSO_4$-$PbWO_4$ at 764° (5.5% $PbWO_4$). Many binary mixts. were metastable; $LiWO_4$-$PbSO_4$ had eutectics at 690° (12% $PbSO_4$) and 882° (76%). In ternary mixts., $PbSO_4$ added to 20% $LiWO_4$-80% Li_2SO_4 (m.p. 695°) gave eutectics at 684° (2.5% $PbSO_4$) and 806° (50%). With 1:1 Li_2WO_4-Li_2SO_4, they were at 630° (3.5%) and 854° (67%). Other mixts. were studied; data were represented in a ternary diagram of crystn. In mixed sulfates and tungstates of Pb, K, Na, and Li, the irreversibility of double decompn. increased from K to Li. Present data confirm the theory that in double decompn. in a fusion contg. a cation with an outer electron configuration of 18 or 18 + 2 and an anion contg. an element with an incomplete *d*-electron shell, the equil. shifts toward combination of these ions. M. M. A.

BELYAYEV, I.N.

USSR

Conjugate liquid layers in ternary reciprocal systems. I. N. Belyaev (V. M. Molotov State Univ., Rostov). *Doklady Akad. Nauk S.S.S.R.* 95, 535-8(1954).—The generalized assumption that conjugate solns. of reciprocal systems with partial or complete immiscibility consist of the components of the stable-pair salts of the stable diagonal is true only in the case of simple systems such as AX + BY ⇌ AY + BX (X and Y are halogens, O, S, etc.) the compds. of which on decompn. form only the elements. It is not necessarily true in complex systems such as Na, PbO||F, TiO_3 (I) (2 simple and 2 complex compds.) or Na, Pb||TiO_3, MoO_3(WO_3) (II) (4 complex compds.). The stable diagonals NaF-$PbTiO_3$ of I and $Na_2Mo(W)O_4$-$PbTiO_3$ of II are binodal systems with small areas of conjugate liquid solns. and these solns. do not contain $PbTiO_3$ ($PbTiO_3$ breaks up to form PbO and TiO at lower temps. in the presence of NaF or $Na_2Mo(W)O_4$). The presence of the conjugate liquid layers in these diagonal systems is ascribed to the penetration of the conjugate liquid phases formed extensively in the systems which form the sides of the triangular prism (3 oxides and 3 fluorides) of I and of the tetrahedron of II. In I on the diagonal NaF-PbO of the side system PbO-NaF-PbF_2-Na_2O, the binodal area extends over practically the entire branch of NaF crystn. Similarly, the binodal arc as of $Na_2Mo(W)O_4$-PbO and $Na_2Mo(W)O_4$-TiO_2, which are diagonal systems of the side systems of (II), extend, practically over the entire crystn. branch of $Na_2Mo(W)O_4$. I. Bencowitz





BELYAYEV, I.N.

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V Reaction of barium titanate with fluorides and pyrophosphates of sodium and potassium. M.O. Shidlovskaya and I.N. Belyaev. *J. Gen. Chem. U.S.S.R.* 24, 1113–16(1954) (Engl. translation).—See *C.A.* 49, 2024c. D. M. B.

CH (7)

BELYAEV, I. N.

6

Exchange decomposition in the reciprocal system of sodium and silver sulfate and molybdate. I. N. Belyaev and A. K. Doroshenko (V. M. Molotov State Univ., Rostov-on-Don). *Zhur. Obshchei Khim.* 24, 427–32(1954). —The reciprocal system Na, Ag||SO_4, MoO_4 was investigated by the visual polythermal method. The binaries Na_2MoO_4–Ag_2MoO_4 and Ag_2SO_4–Ag_2MoO_4 were detd. for the first time; the 1st consists of a series of solid solns., (Na, Ag)MoO_4, with a min. at 546° and 21 mol. % Na_2MoO_4; the 2nd shows a eutectic at 497° with 33 mol. % Ag_2SO_4. The binaries Ag_2SO_4–Na_2SO_4 and Na_2MoO_4–Na_2SO_4 were redetd.; both consist of continuous solid solns., the 2nd with a min. at 673° and 25% Na_2SO_4. The diagonal cross sections Ag_2MoO_4–Na_2SO_4 and Ag_2SO_4–Na_2MoO_4 have 2 intersecting branches; in the 1st it represents a eutectic, 547°, and 5.5% Na_2SO_4; in the 2nd the intersection is in the Na_2SO_4 field with which Ag_2SO_4 forms solid solns.; it cannot be a eutectic. The m. ps. of 15 addnl. mixts. provided sufficient data to trace out the entire system, and an orthographic projection of the isothermals on the 25° plane is given. From the classification of Bergman and Dambrovskaya (*C.A.* 24, 2366) this system should be irreversible but the slight curvature of the diagonal Ag_2MoO_4–Na_2SO_4 and the curvatures of the isotherms in the (Na, Ag)SO_4 field suggest partial reversibility of the reaction $Ag_2SO_4 + Na_2MoO_4 \rightleftarrows Ag_2MoO_4 + Na_2SO_4$. The analysis of the relative stabilities of this and other known similar systems, Na, Pb||SO_4, MoO_4 and Na, Pb||SO_4, WO_4, led to the generalized conclusion that in reciprocal systems the equil. is displaced toward salt-pairs contg. 1 cation with an 18 + 2 (Tl, Pb) or 18 (Ag) outer electron shell and 1 anion contg. an element with an incomplete *d*-electron shell (Mo, W). I. Bencowitz

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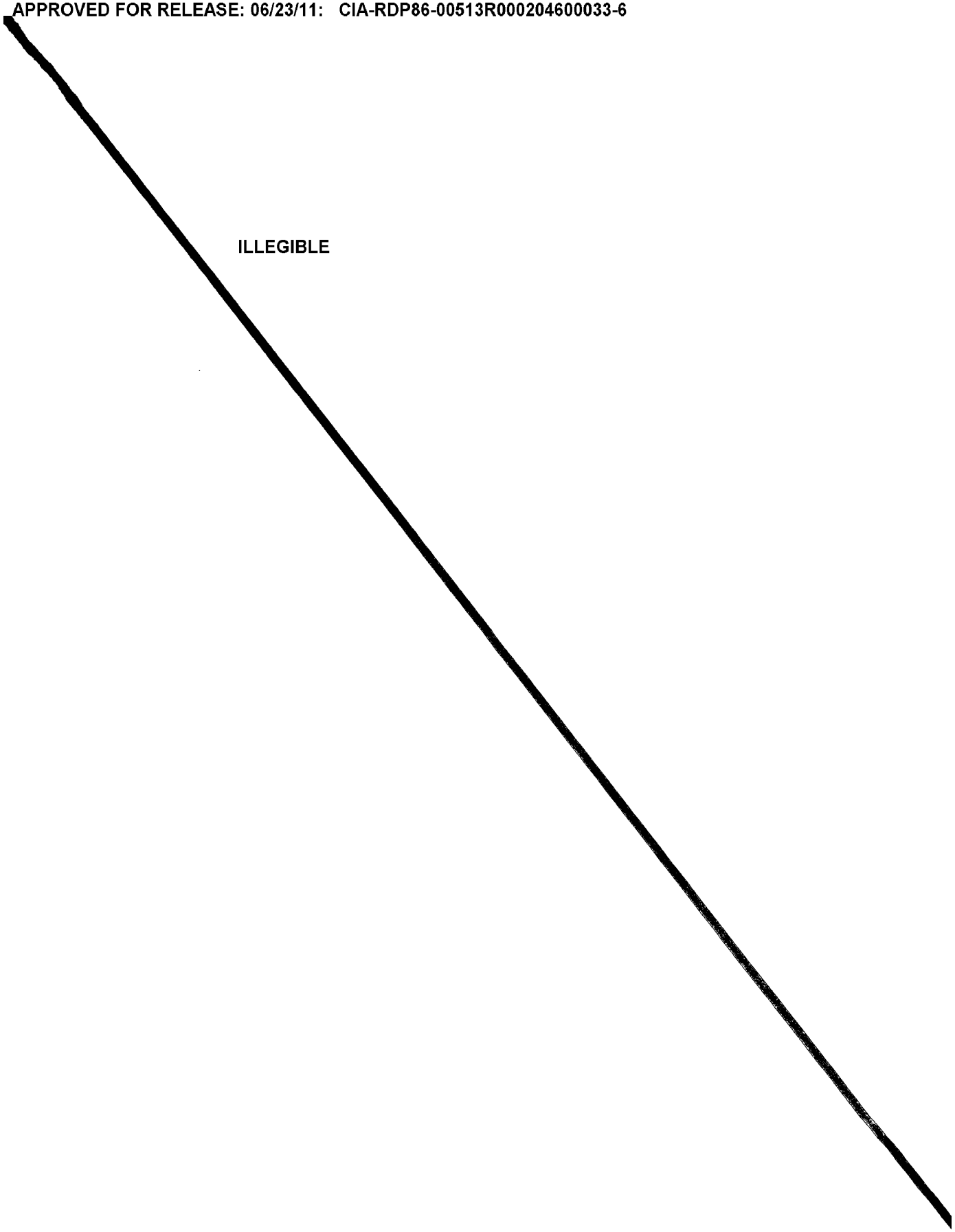

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